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TEST EXCAVATIONS at 23DU253 and 23DU258

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Historic Preservation Associates Reports 83-8

DECEMBER 1983

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	DEC 1983	final

4. TITLE AND SUBTITLE
Test Excavations at 23DU253 and 23DU258

5. FUNDING NUMBERS
c DACW66-83-M-1876

6. AUTHOR(S)
Timothy C. Klinger
Steven M. Imhoff

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Historic Preservation Associates

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Dept. of the Army
Memphis District Corps of Engineers
B-202 Clifford Davis Federal Bldg.
Memphis, TN 38103

10. SPONSORING MONITORING AGENCY REPORT NUMBER
126

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

23DU258 is a small scatter of historic and prehistoric artifacts in a heavily disturbed context along material deposits from the creek. No evidence of primary deposition or in situ deposits was recovered. 23DU253 is a small scatter of artifacts in primarily disturbed context. It is likely that the area represents the easternmost extent of 23DU252 which is situated on the other side of the ditch. Original ditch excavation severly impacted the archaeological deposits east of the western bank of the channel.

14. SUBJECT TERMS	15. NUMBER OF PAGES
	45
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT

(126)

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Test Excavations at 23DU253 and 23DU258

National Register Assessment of Two Prehistoric Archeological Sites along the Upper Buffalo Creek Ditch, Dunklin County, Missouri

by

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and

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December 1983

Historic Preservation Associates Reports 83-8

Report submitted to the Department of the Army, Memphis District, Corps of Engineers, in accordance with Contract No. DACW66-83-M-1876.

ABSTRACT

The investigations described in this report focus on the testing and assessment of two archeological sites (23DU253 and 23DU258) within a section of right-of-way along the Upper Buffalo Creek Ditch in Dunklin County, Missouri. 23DU258 is a small scatter of historic and prehistoric artifacts in a heavily disturbed context along material dredged from the creek. No evidence of primary deposition or in situ deposits was recovered. 23DU253 is a small scatter of artifacts in primarily disturbed context. It is likely that the area represents the easternmost extent of 23DU252 which is situated on the other side of the ditch. Original ditch excavation severely impacted the archeological deposits east of the western bank of the channel. Neither site is considered eligible for the National Register of Historic Places and no further cultural resources work at them is recommended.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

BACKGROUND AND PURPOSE OF THE REPORT

In September of 1983, the Memphis District of the U. S. Army Corps of Engineers (COE) asked Historic Preservation Associates (HPA) to develop a proposal for test excavations and assessments of sites 23DU253 and 23DU258, located along Upper Buffalo Creek Ditch in Dunklin County, Missouri. On 20 September 1983, the HPA proposal was forwarded to the Memphis District. The notice to proceed was forwarded on 30 September 1983 and received by HPA on 6 October 1983.

The purpose of this report is to fully document the archeological investigations conducted at 23DU253 and 23DU258. This report follows the guidelines in Reporting Phase II Testing of Arcnaeological Site Significance & Evaluation of National Register Eligibility (Weichman 1979) as well as those contained in The Management Archeological Resources: The Airlie House Report (McGimsey and Davis 1977).

All archeological materials collected and copies of all related records generated as a result of this work will be curated by the Center for Arcnaeological Research Southeast Field Station located at Naylor, Missouri.

Project Location, Sponsor and Participants

The sites in question are located approximately 1/2 mile (.8 km) east and southeast of the community of Hollywood, Missouri along the stretch of Buffalo Ditch flowing through sections 2, 3 and 10, T16N, R6E (Figure 1). The project area is entirely within the Little River portion of the St. Francis Watersned (Figure 2). The focus of the program was to provide basic management data regarding the location, nature and extent of the two sites concerned, so that their significance relative to National Register of Historic Places criteria could be determined. Although test excavations had been conducted previously at both sites (Iroquois Research Institute 1980:100-101, 103-104), questions regarding their basic nature arose that could not be resolved with the information provided.

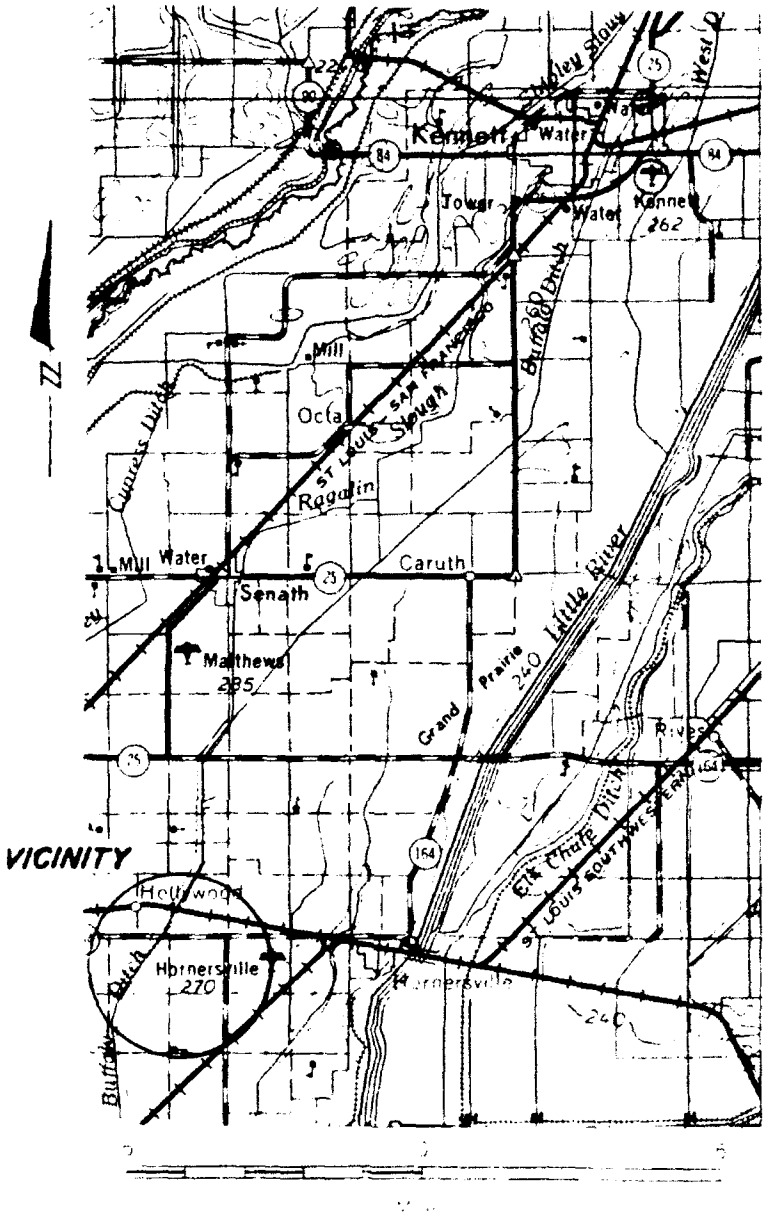
The overall project sponsor is the Memphis District of the U. S. Army Corps of Engineers. The Contracting Officer is Ms. Sara C. Hales and her Authorized Representative is Mr. Jimmy D. McNeil, an archeologist in the Environmental Section of the Memphis District.

Historic Preservation Associates carried out the investigations reported on here. Mr. Timothy C. Klinger served as Principal Investigator while Mr. Steven M. Imhoff and Mr. Dan Haines conducted the fieldwork. Klinger and Imhoff prepared the report. Others who participated in the program include Scott A. Jones and Carol Martindale (Appendix B).

Scope of Work

The complete Scope of Work for the project is included as Appendix A, however, portions of the Scope dealing specifically with the work requested are reproduced below.

> 4.02. Subsurface Data Retrieval - Testing
>
> a. Subsurface test units (other than shovel cut units) shall be excavated in levels no greater than 10 centimeters. Where cultural zonation or plow disturbance is present,



PROJECT VICINITY

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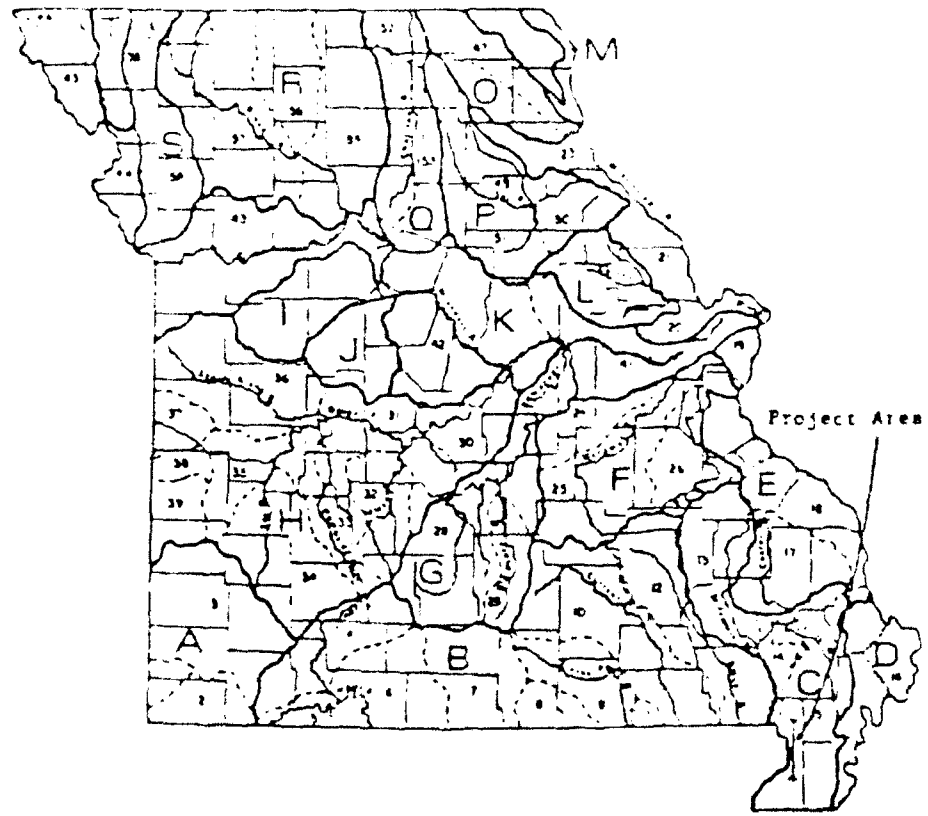
General vicinity of sites 23DU253 and 23DU258

From USACOE 1:250,000 Series, Poplar Bluff — Figure 1



A. Arkansas
   1. Lost Creek
   2. Elk
   3. Spring
B. White
   4. James
   5. Table Rock
   6. White
   7. North Fork
   8. Spring
   9. Eleven Point
   10. Current
   11. Fourche Creek
   12. Black
C. St. Francis
   13. Upper St. Francis
   14. Lower St. Francis
   15. Little River
D. Lower Mississippi
   16. Lower Mississippi
E. Upper Mississippi
   17. Whitewater/Castor
   18. Mississippi 1
   19. Mississippi 2
   20. Mississippi 3
   21. Mississippi 4
   22. Mississippi 5
   23. North River

0 10 mi

MISSOURI WATERSHEDS

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Project location in relation to Missouri watersheds

Figure 2

however, excavated materials shall be removed by zones (and 10 cm levels within zones where possible). Subsurface test units shall extend to a depth of at least 20 centimeters below artifact bearing soils. A portion of each test unit, measured from one corner (of a minimum 30 X 30 centimeters), shall be excavated to a depth of 40 centimeters below artifact bearing soils. All excavated material (including plow zone material) shall be screened using a minimum of 1/4" hardware cloth. Representative profile drawings shall be made of excavated units.

b. The contractor shall establish a permanent datum at each site which shall be precisely related to the site boundaries as well as to a permanent reference point (in terms of azimuth and distance). If possible, the permanent reference point used shall appear on Government blueline (project) drawings and/or 7.5 minute U.S.G.S. quad maps. If no permanent landmark is available, a permanent datum shall be established in a secure location for use as a reference point. The permanent datum shall be precisely plotted and shown on U.S.G.S. quad maps and project drawings. All descriptions of site location shall refer to the location of the primary site datum.

e. . . . a minimum of five (5) test units shall be placed in each site, in order to provide enough information to make a determination of site eligibility to the National Register of Historic Places.

Project Description, Impacts and Dates of Investigations

The direct impact zone along Upper Buffalo Creek Ditch represents an area slated for rechannelization. 23DU253 is located on the east side of the ditch and is buried beneath dredged material removed during previous episodes of ditch excavation and cleanout. 23DU258 is located west of the ditch, approximately 1 mile upstream, and is well within the construction right-of-way.

Both sites will suffer direct and indirect impact as a result of the planned maintenance activities. Direct impact will consist of burial beneath additional dredged material, and possible damage from channel re-excavation at 23DU253. Indirect impact will include use of dredged material by local farmers to level fields and plowing-down of the ditch bank so that crops can be planted on it, resulting in the possible redeposition of cultural materials in areas well away from the ditch.

Both sites were visited on 24 October 1983 to become familiar with their locations and to assess possible problems not previously anticipated. Work was conducted at 23DU253 on 25, 26 and 27 October 1983 and at 23DU258 on 27 and 28 October 1983.

ENVIRONMENTAL SETTING

A detailed account of the natural and cultural environment of sites 23DU253 and 23DU258 is beyond the scope of this report. Discussions of the natural environment of the Mississippi Alluvial Valley in general and southeast Missouri in particular are contained in

Gurley (1979:2), Klinger et al (1981:9-24), Phillips, Ford and Griffin (1951:5-36) and Saucier (1974). Discussions of the cultural environment can be found in Chapman (1975, 1980), Klinger et al (1981:35-36), Morse and Morse (1983), Phillips, Ford and Griffin (1951) and Williams (1974).

Environmental Setting of 23DU253

23DU253 is situated approximately 500 meters south of U. S. 164, immediately east of Buffalo Creek Ditch, and is completely buried beneath material dredged from Upper Buffalo Creek Ditch. Topographic features have been eliminated by burial beneath dredged material and leveling of the adjacent fields for agricultural purposes. At the time fieldwork was in progress, the northern portion of the site was covered with a dense growth of grasses and weeds, while the southern portion was planted in winter wheat. Other vegetation included secondary growth along the ditch and other agricultural crops.

Ground surface visibility in areas that were overgrown was very poor (less than 10%) while that in the area planted in winter wheat was excellent (virtually 100%). Visibility in a soybean field immediately east of the site was very poor since the plants had been recently defoliated in preparation for harvest, producing a dense covering of leaves between the rows.

23DU253 is apparently situated on Canalou loamy fine sand (Gurley 1979:15-16, 54, Sheet 42), despite the fact that the mapping unit shown in the county soil survey is Cairo silty clay. The Canalou loamy fine sand mapping unit is very close by, however, and the results of our excavations indicate that it extends further toward the ditch than is shown on the SCS aerial soil map. Gurley (1979:54) describes Canalou soils as consisting:

> . . . of deep, moderately well drained soils that have moderately rapid permeability. These soils formed on ridges and drains of natural levees in sandy and loamy alluvium. Slopes are 0 to 2 percent.

These soils are rarely or never flooded and the ground surface is normally 2 to 3 feet above the seasonal high water table (Gurley 1979:134). Trees common to this soil type include eastern cottonwood (Populus deltoides), pin oak (Quercus palustris), black oak (Quercus velutina) and sweetgum (Liquidambar styraciflua).

Environmental Setting of 23DU258

23DU258 is situated on a slight rise approximately 100 meters north of the abandoned St. Louis-Southwestern Railroad Grade, immediately west of Buffalo Creek Ditch. At the time fieldwork was in progress, the site was planted in soybeans that had recently been defoliated. Ground visibility was generally less than 10%, with the exception of a field road that runs parallel to the ditch along dredged material. Vegetation along the ditch consisted of very dense secondary growth.

The site is situated on Cairo silty clay (Gurley 1979:13-14, 52-53, Sheet 42), which:

> . . . consists of deep, poorly drained, very slowly permeable over rapidly permeable soils. These soils formed in clayey alluvium over sand in abandoned braided channels. Slopes are 0 to 2 percent.

Prior to modern flood control programs, these soils were commonly flooded for short durations, usually between November and June. The seasonal high water table is at or near (2 ft) the surface (Gurley 1979:134). Trees common to this soil include pin oak, baldcypress (Taxodium distichum), swamp white oak (Quercus bicolor), eastern cottonwood and green ash (Fraxinus pennsylvanica).

PREVIOUS INVESTIGATIONS

Both 23DU253 and 23DU258 were recorded, tested and assessed during a survey of Buffalo Creek Ditch by personnel from Iroquois Research Institute (IRI) in 1979. Their report on these sites is reproduced below.

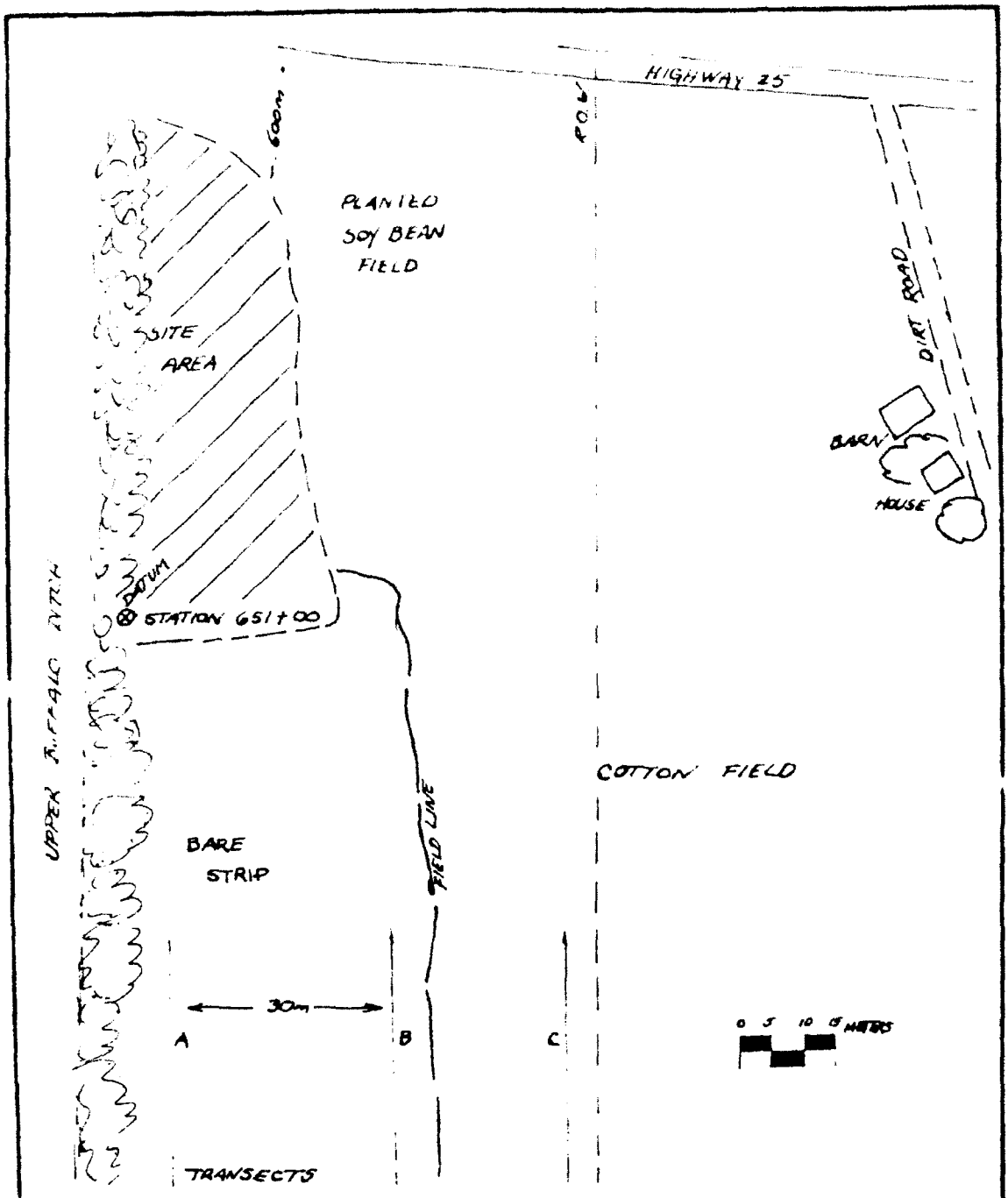
23DU253

This prehistoric site was located during a shovel test survey through a soybean field adjacent to Buffalo Ditch. It is situated in a relict gathering channel on Cairo silty clay soil. One sherd was recovered from a shovel test, and additional ceramic and lithic materials were observed on the surrounding ground surface. After a preliminary examination of the site area, a datum stake was placed on the ditch bank to facilitate future location of the site (Figure 3).

When the site was revisited, a grid of 10 x 10 meter squares covering an area of 3,100 square meters was laid out over the site (Figure 4). The usual systematic and selective surface collection procedures were conducted within the gridded area. The mean surficial artifact density of the site, calculated from the systematically collected units, is quite low, 0.02 artifacts per square meter. The site size is estimated to be approximately 4,000 square meters, based on the results of the surface collections and on controlled observations outside the gridded area. The site is entirely within the proposed right-of-way. Approximately two-thirds of the site is within a spoil area adjacent to the ditch. This spoil area is easily discernible from the surrounding field as it has a slight slope and a lighter color and sandier texture than the surrounding field.

A 1 x 2 meter test excavation unit was placed just beyond the area covered by spoil, in an area where surficial artifact density was relatively high. Excavation in this unit continued to a depth of 31 centimeters and was terminated after two successive sterile levels were removed. One piece of debitage and one Barnes Plain sherd were recovered from the plowzone and the remainder of the test pit was sterile.

Two strata were identified in the excavation unit. Stratum I, the plowzone, was a dark brown sandy loam which extended to a maximum depth of 21 centimeters. Stratum II extended from the base of the plowzone to the floor of the excavation at 31 centimeters. Stratum II was characterized as a very dark grey and dark greyish brown mottled sandy loam.



IRI 23DU253 MAP

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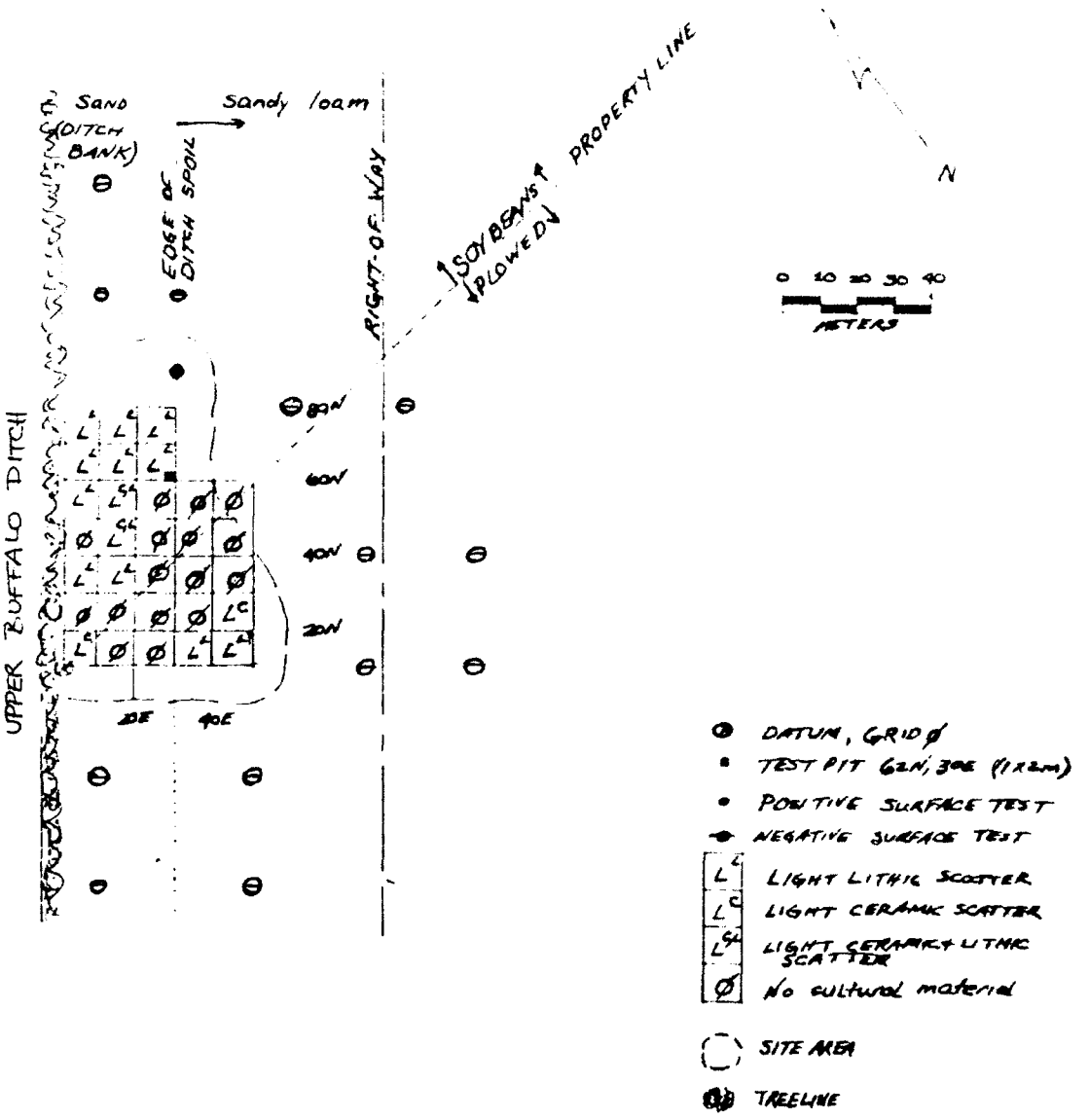
Iroquois Research Institute sketch map of 23DU253 (1980)

(lettering enhanced from original) — Figure 3



IRI 23DU253 MAP

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Iroquois Research Institute map of 23DU253 with collection grid (1980)

(lettering enhanced from original) — Figure 4

The artifact collection from this site includes both lithic and ceramic items. The lithic artifacts include bifaces, flake tools, and debitage. The raw materials represented include Crowleys Ridge chert, Crescent Quarry chert, Burlington chert, quartzite and unidentified chert. A nearly complete point was recovered from the surface of the site and is illustrated in Plate 13:E. It is a stemmed point with squared shoulders and a narrow, elongated blade. The specimen is made of Crowleys Ridge chert and resembles the Pontchartrain point type, which is associated with Late Archaic Poverty Point components (Perino 1968; Webb 1977).

The ceramic assemblage includes Barnes Plain, Barnes Cord Marked, Barnes indeterminate and Neeleys Ferry Plain sherds. The sand tempered Barnes ceramics, one of which is illustrated in Plate 14:C, are indicative of a Woodland Period occupation while the shell tempered Neeleys Ferry Plain sherds are Mississippian Period diagnostics.

A small turtle shell fragment was recovered from the surface of the site. Its condition indicates that it is not of recent origin. Mussel shell fragments were also observed scattered over the site surface. [Iroquois Research Institute 1980:100-101].

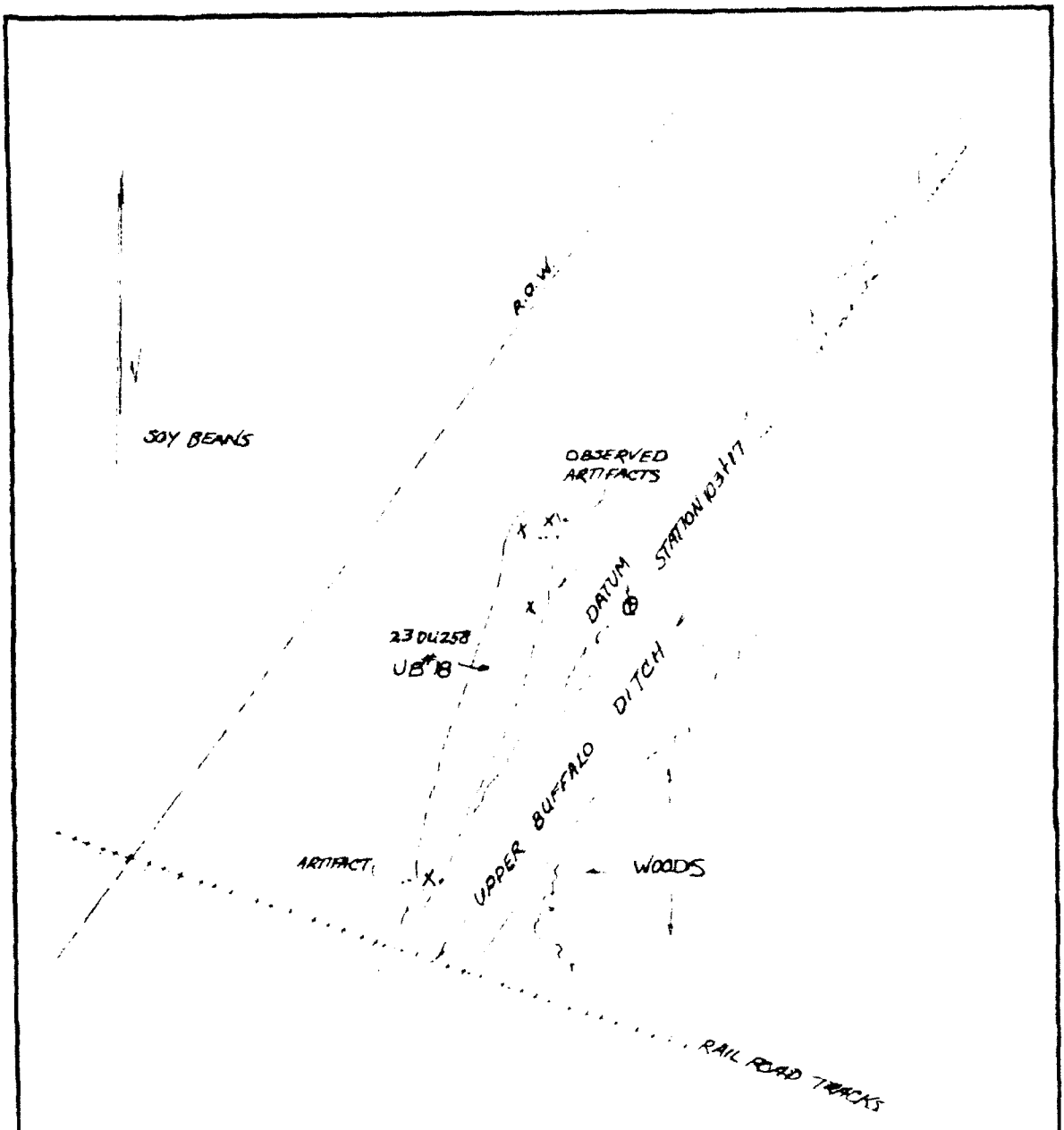
23DU258

This prehistoric and historic site was discovered during a shovel test resurvey through a soybean field adjacent to Buffalo Ditch. A light scatter of prehistoric and historic artifacts was observed in an area of ditch spoil and along a slight rise outside the spoil dump. The site is located on Cairo silty clay soil in a relict gathering channel. After preliminary examination of the area, a datum stake was placed near the ditch bank to facilitate location of the site [Figure 5].

When the site was revisited, a grid of 10 x 10 meter squares covering an area of 2,000 square meters was laid out over the site [Figure 6]. The usual selective and systematic surface collection procedures were conducted within the gridded area. The mean surficial artifact density over the site, as revealed by the systematically collected units, was quite low, 0.05 artifacts per square meter. The total site size is estimated to be 3,700 square meters, based on the surface collection results and controlled observations outside the gridded area. Approximately one-third of the site is located in the spoil deposit area and the entire site is within the proposed right-of-way.

A 1 x 1 meter test pit was placed in an area of high surficial artifact density outside the spoil area. Excavation continued to a depth of 35 centimeters and was terminated after two successive sterile levels were removed. The materials recovered from the test pit consist of six pieces of glass, all from the plowzone.

Two strata were revealed in the test pit. Stratum I, the plowzone, was a dark brown sandy loam which extended to an average depth of 15 centimeters. Stratum II extended from



IRI 23DU258 MAP

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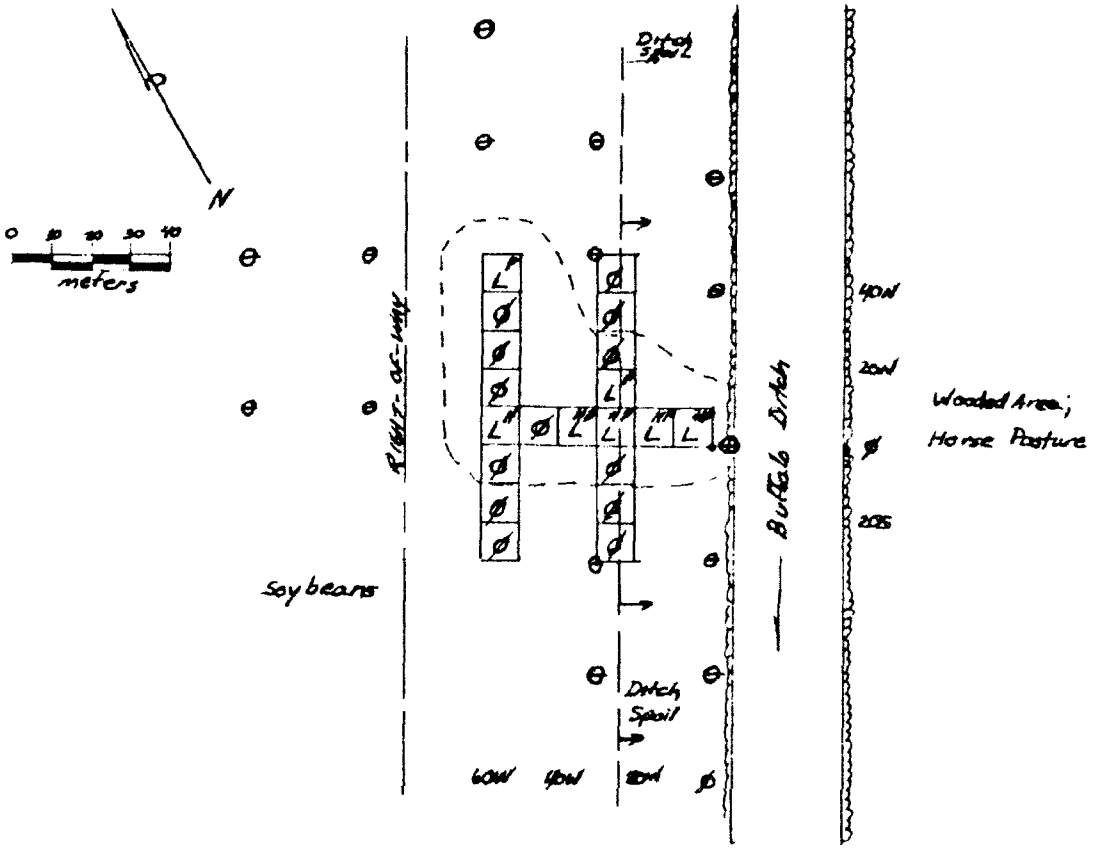
Iroquois Research Institute sketch map of 23DU258 (1980)

(Lettering enhanced from original)

Figure 5



Ø No cultural material
L^P Light prehistoric scatter
L^H Light historic scatter
L^PH Light historic and prehistoric scatter
• Grid Ø
⊖ Negative Surface Test
● Datum
Site Area
Treeline

0,0 is 4.2 meters N240° from datum
Test pit (1X1m) at 11N30W

IRI 23DU258 MAP

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Iroquois Research Institute map of 23DU258 with collection grid (1980)

(lettering enhanced from original) — Figure 6

the base of the plowzone to the floor of the test pit at 35 centimeters and was characterized as a dark yellowish brown sandy loam with iron oxide inclusions.

The prehistoric artifact collection from the site is entirely lithic and includes debitage and one biface. The raw materials represented include Crowleys Ridge chert, Crescent Quarry chert, Mill Creek chert and unidentified chert. There is insufficient data to determine the chronological position of the prehistoric component.

The majority of the materials collected from the site are historic, and these include modern bottle glass, brick fragments, nails, barbed wire, a large metal spike, and refined lead-glazed earthenware sherds. Similar materials were observed over the site area. While there is no structure shown at this location on a recent quadrangle map of the area (1956a), the artifact assemblage suggests that a structure, possibly an early 20th century habitation, once existed at this location.

One piece of bone was also recovered from the surface of the site. It is too small and poorly preserved for identification. (Iroquois Research Institute 1980:103-104).

Based on their investigations, Iroquois concluded that:

> None of the historic archaeological components recorded during the survey are considered eligible for the National Register. These resources are not associated with any person or event of local, regional or national importance, and they are characterized by a limited artifact content and a lack of integrity such that their functional character cannot be assessed with certainty. Each site's location and artifact assemblage have been recorded during the survey and testing.
>
> Given the amount of data that has been recorded for the architectural and historic sites and the limited potential of these sites to furnish additional information, implementation of the project as planned would probably not cause an adverse impact to the historic and architectural resources of the area.
>
> The prehistoric resources which are not considered to be potentially eligible for the National Register are those which have been severely disturbed by modern agricultural activity and prior ditch excavation and those with an extremely limited data potential. Sites . . . 23DU253. . . and 23DU258 are not considered significant because they are considered to have an extremely limited potential to furnish additional information. . . . (Iroquois Research Institute 1980:115).

Significance of the Previous Work to the Present Investigations

The IRI investigations documented both 23DU253 and 23DU258 as heavily disturbed plowzone sites that were not eligible for inclusion on the National Register and did not merit further data recovery prior to implementation of the COE project. Our initial impression was that this

seemed to be the case, but several important questions still remained unanswered. First, an assessment as to whether the surface materials had been redeposited during ditch excavation and subsequent cleanout was not made. Second, the use of these materials, particularly at 23DU253, for estimating the horizontal extent of the sites cast considerable doubt on the validity of the estimates given. And third, no attempt was made to determine if undisturbed deposits might exist beneath material dredged from the ditch.

Our goal, then, was to answer some very basic questions regarding both sites:

1. What is the nature of the archeological deposits (disturbed, undisturbed, well preserved, no preservation)?
2. What is the areal extent (both vertical and horizontal dimensions) of the archeological deposits?
3. During what general cultural-historical time period(s) were the sites occupied?
4. What was the general function of the sites in terms of the range of activities represented?

It was our feeling that, although the IRI investigations seemed to have partially answered some of these questions, the generally vague manner in which the data were presented in both the site forms and the 1980 report rendered them less useful than they should have been in independently assessing the nature of 23DU253 and 23DU258. It was, therefore, necessary to start at the beginning and completely reassess each site.

FIELD METHODOLOGY

Site Relocation and Spatial Control

Both sites were relocated using a combination of surface reconnaissance, locational information provided on the IRI site forms and project blueline drawings. Surface reconnaissance proved sufficient to relocate 23DU253, however, the location of 23DU258 could be determined only by measuring from the St. Louis-Southwestern Railroad grade to the location given for the IRI site datum (Station 703+17). A concerted effort to locate the datum stakes placed by IRI was unsuccessful, so the location of HPA's fieldwork in relation to the work conducted by IRI can only be approximated. This, however, has no effect on our ability to use IRI data in assessing the sites.

Spatial control was maintained at each site by relating all work to 2" x 2" wooden datum stakes placed as near to the top bank of the ditch as the vegetation would permit. More permanent markers, such as iron rods or brass discs set in concrete, were not used since their long term (e.g., 5, 10 or 20 years) survival would have been no better than wooden stakes in this often altered environment. Markers placed in the plowed fields would have certainly been removed or dislodged by the individuals farming the land, while those placed near the top bank of the ditch would not be clearly visible and would have been removed or buried during subsequent ditch maintenance. Moreover, the results of the work clearly showed that both 23DU253 and 23DU258 were of such dubious

validity that permanently marking them would be superfluous. The locations of the stakes was determined by measuring from U.S. 164 in the case of 23DU253, and from the railroad grade in the case of 23DU258. It was decided that this was preferable to distance and azimuth readings to a landmark since the only landmarks visible were man-made structures and trees. Both were considered too impermanent to serve as useful reference points.

Methodology at 23DU253

The exact location of 23DU253 was determined by measuring from the southeast abutment of the U.S. 164 bridge to the northernmost end of the site (500 m), with a roll-a-tape. This point was plotted on the blueline construction map and a measurement was made to the approximate location of the IRI site datum (Station 651+09). An error in converting the measurement taken from the map, which was in feet, to meters (due apparently to a faulty calculator) resulted in the placement of the HPA datum approximately at station 649+23 instead of station 651+09 as we had wished. This caused some initial confusion in the field but was quickly resolved during a double check of the mapping data and had no effect on the work conducted.

The site datum was placed approximately 2 meters east of the top bank of the ditch and a centerline for the grid was established 25 meters to the east to avoid the heavy vegetation along the ditch and to provide an unobstructed mapping station. The centerline was oriented 35° east of north, roughly parallel to the edge of the field along the ditch. Horizontal control was maintained with a Brunton compass and the roll-a-tape. Although a transit would have been more accurate for this purpose, the use one was not considered necessary, due to the limited scope of the work undertaken, the relatively simple nature of the site and the fact that elevations were not required.

Our first task was to excavate two 1 m x 1 m test units through the material dredged from the ditch to determine, early on, if archeological deposits were buried beneath the dredged material, or if the site was composed entirely of redeposited materials. One of these was placed at grid coordinate 120N/15E and the other at 140N/10E. The dredged material (Stratum I) was removed as a unit and discarded. This step was justified by the questionable origin of the matrix and the consequent lack of any context for cultural material that might be recovered. Soil from beneath the dredged material was shovel skimmed in 10 cm levels but natural strata were excavated separately when possible. All excavated soil was screened through 1/4" hardware cloth and all material that did not fall through was retained. Vertical control was maintained by using a line level attached to the southwest corner of each unit at ground level. Forms were kept for each level and planview drawings and photographs were made as required. Each test unit was drawn in profile and photographed following its completion.

Surface materials could not be used to estimate horizontal site dimensions, nor were collections of them taken since it was apparent that virtually all of the materials present on the surface were situated on or very near material dredged from the ditch and were, therefore, uniformly out of context. We simply could not be certain whether these materials actually came from the 23DU253 location or some other place. An estimate of the horizontal extent of the site was obtained by extensive testing with clam-shell posthole diggers. Three north-south

transects were installed (10E, 25E and 45E) with posthole tests at 20 meter intervals. With few exceptions, these tests were excavated in 10 cm levels (as measured from the ground surface) and the excavated soil screened through 1/4" hardware cloth. Notes were kept on strata encountered (based on the strata found in the 1 m x 1 m test units), presence/absence of disturbances and general level contents. Twenty-one such tests were excavated.

Methodology at 23DU258

The datum at 23DU258 was placed 1 m west of the top bank of Buffalo Creek Ditch, approximately at station 703+17. This point was established by measuring 113.5 m north of the north edge of the borrow ditch paralleling the north side of the abandoned St. Louis-Southwestern Railroad grade at the point where a foot path crosses the borrow ditch (about 7 to 10 meters west of Buffalo Creek Ditch). A point easier to relocate (such as the bridge abutment at 23DU253) was not available, due to heavy vegetation and the relatively remote location of the site.

A grid system was established, paralleling the ditch and oriented 25° east of north. Horizontal control was again maintained with a Brunton compass and tape, as at 23DU253.

The first test unit was placed on material dredged from the ditch, at grid coordinate 0S/20W to determine whether undisturbed archeological deposits existed below it. Vertical control was maintained with a line level attached to the southwest corner of the unit at ground level. The soil was shovel skimmed in 10 cm levels and screened through 1/4" hardware cloth (including the dredged material) and all material that did not fall through was retained. Level sheets and profile drawings were completed.

The second 1 m x 1 m test unit was installed at grid coordinate 0S/2W, also placed on the dredged material. This unit was intended to reveal whether the site had been bisected by the ditch and subsequently buried beneath the excavated soil. In this instance, the dredged material was excavated with a shovel and discarded since it was already known that it contained cultural material. Soil beneath the dredged material (below a depth of 90 cm) was shovel skimmed and screened through 1/4" hardware cloth.

Posthole tests were placed at grid coordinates 20S/5W, 0S10W and 20N5W to provide better areal coverage and to confirm the results obtained in the excavation of the 1 m x 1 m test units.

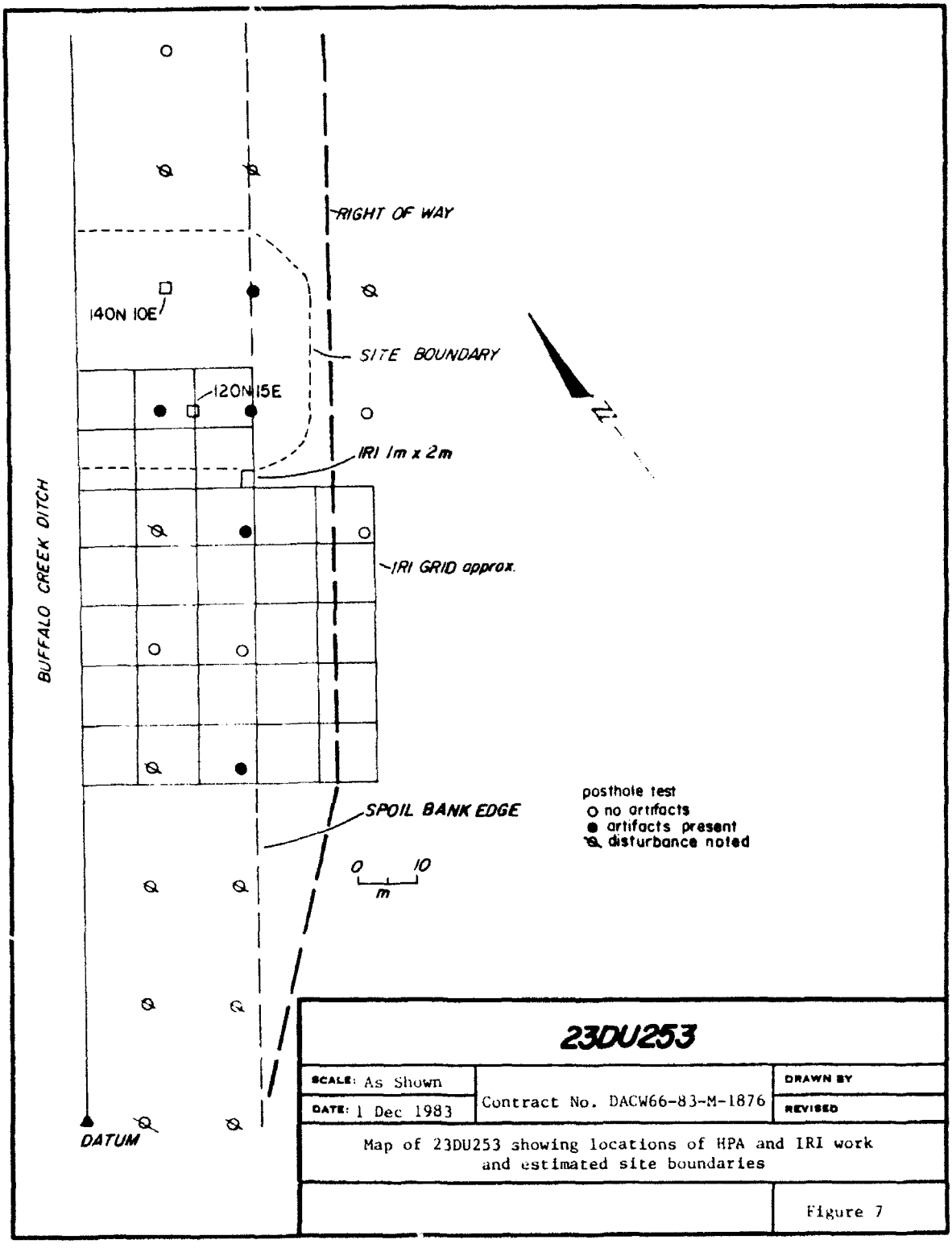
RESULTS

Results of the Investigations at 23DU253

Two and one half days of investigations at 23DU253 (Figure 7) provided much new information regarding the nature and extent of this site. This section will present the data collected and our interpretation of it relative to the questions outlined previously.

Data Recovered from 1 m x 1 m Test Units

Test unit 140N/10E provided most of the data relating to site stratigraphy and material content. Unit 120N/15E was less productive since it turned out to be situated in a heavily disturbed portion of the



23DU253

SCALE: As Shown	Contract No. DACW66-83-M-1876	DRAWN BY
DATE: 1 Dec 1983		REVISED

Map of 23DU253 showing locations of HPA and IRI work and estimated site boundaries

Figure 7

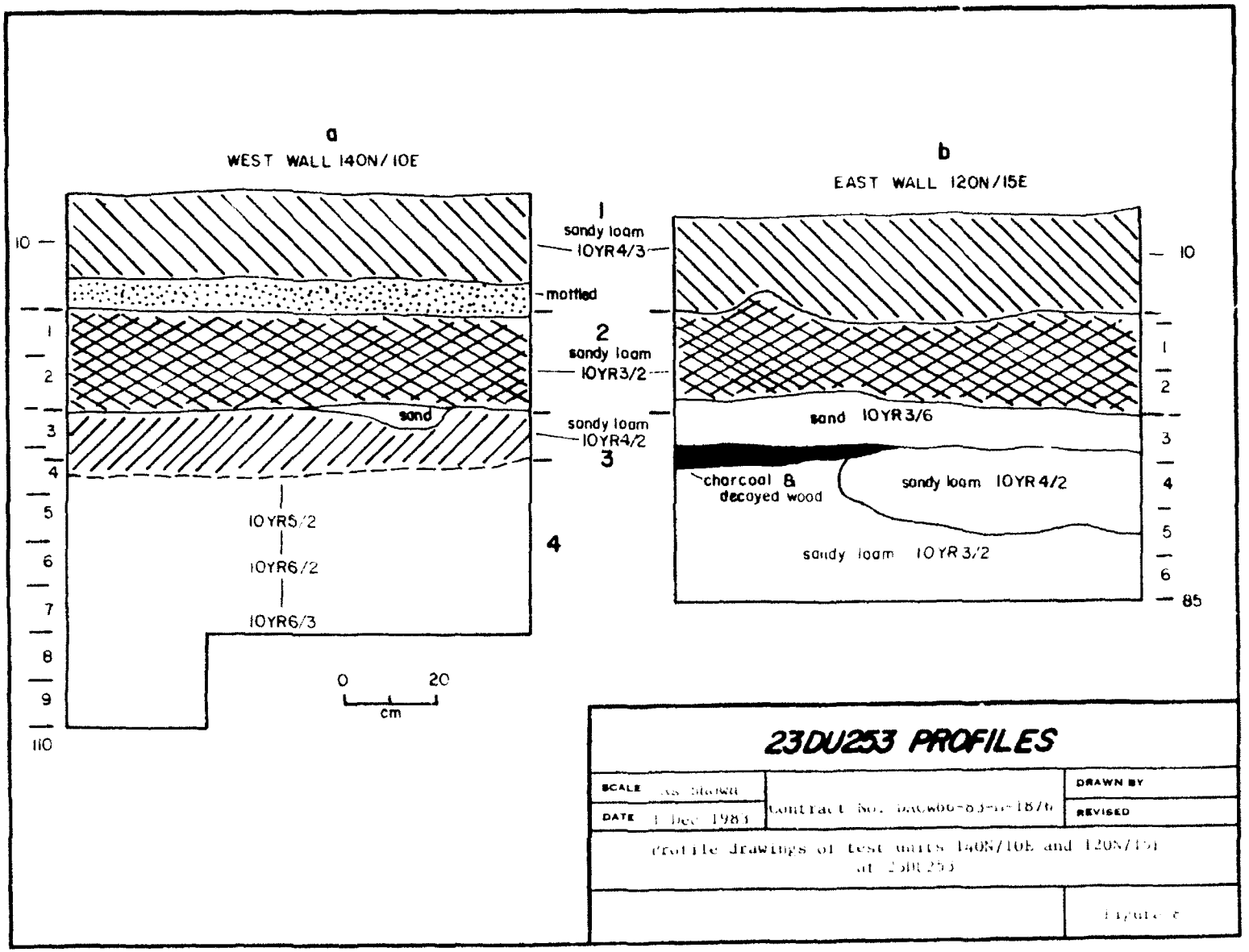
site. Before discussing the data, one point should be made regarding the actual excavation of unit 140N/10E as it relates to the Scope of Work. Recall that the Scope required test units to be excavated 20 cm below the deepest artifact-bearing deposits, with an additional 20 cm in the form of a 30 cm x 30 cm test. While in the field it was our impression that, in fact, we had done just that, however, material recovered from the screen was not readily identifiable due to a coating of soil. It was, therefore, not possible to differentiate between artifacts and concretions, except in the most obvious cases. As a result, our two deepest levels (75 cm - 85 cm and 85 cm - 95 cm) contain a few artifacts. We believe, however, that the data also show that the bulk of the cultural materials are above these levels and that the base of the deposits was in fact reached.

Stratigraphy and Content of Test Unit 140N/10E

Stratum 1. Stratum 1 is composed of soil excavated from Buffalo Creek Ditch and consists of a brown to dark brown sandy loam (10YR4/3) to a depth of 19 cm that overlies a heavily mottled zone containing a variety of soil colors and textures extending to a depth of 22 cm to 25 cm (Figure 8a). This stratum was removed with a shovel and discarded. Two artifacts were recovered from the west wall of the unit at a depth of 10 cm and include a biface tip weighing 3.4 g and a Kennett (Barnes) Plain sherd weighing 5.4 g. This stratum was very well defined with an abrupt boundary between it and Stratum 2.

Stratum 2. Stratum 2 begins at 22 cm to 25 cm and extends to a depth of 45 cm to 47 cm and includes levels 1 (25 cm - 35 cm) and 2 (35 cm - 45 cm). This stratum is composed of a very dark grayish brown sandy loam (10YR3/2) with plowscars evident at 35 cm to 37 cm. The matrix was very moist and clung to material recovered in the screen. This stratum was also very well defined, with abrupt upper and lower boundaries. The base exhibited some evidence of disturbance in the form of soil mottling and a small inclusion of sand. The lack of any transitional zone between strata 2 and 3, plus an almost horizontal boundary suggests the possibility that Stratum 2 may also be artificial. It does not seem likely that it is dredged material since it is very different in both color and texture and extends well beyond the boundary of the dredged material. It is possible that this stratum was deposited when the adjacent field was leveled. One of the landowners, Mr. Vernon Hadhock, confirmed that not only had the field been leveled, but that dredged material from the ditch had been used to fill in low spots and add sand to the soil. One area of sand (10YR3/6) was noted at the base of Stratum 2.

Cultural materials recovered from Stratum 2 (Table 1) include 1 biface edge fragment, 1 Kennett Plain sherd, 1 Barnes Cord Marked sherd and 3 Neeley's Ferry Plain sherds. Other materials include shatter debris (1), fire-cracked chert (1), bone fragments (4), burned clay (1), decayed and partially carbonized wood (1.3 g), some possible red pigment (2), fragments of coal (.5 g) and soil concretions (19.3 g). The shatter, fire-cracked chert, bone, possible pigment and burned clay may or may not be cultural in origin. The wood and coal probably represent materials deposited when the ditch was originally excavated in 1905, since, according to Mr. Hadhock, the machinery used was steam powered. These may also constitute evidence that stratum 2 is redeposited.



23DU253 PROFILES

SCALE as shown	Contract No. DACW66-83-D-1876	DRAWN BY
DATE 1 Dec 1983		REVISED

Profile drawings of test units 140S/10E and 120S/15E at 23DU253

Figure 5

TABLE 1
MATERIAL RECOVERED FROM TEST UNIT 140N/10E AT 23DU253

TEST UNIT 140N/10E	Level 1 25-35 cmbs		Level 2 35-45 cmbs		Level 3 45-55 cmbs		Level 4 55-65 cmbs		Level 5 65-75 cmbs		Level 6 75-85 cmbs		Level 7 85-95 cmbs		Level 8 95-105 cmbs		Level 9 105-115 cmbs		TOTAL	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
PREHISTORIC LITHICS																				
Pri. Dec. Flake					1	1.20			1	.90	2	.50	1	1.10					5	3.70
Sec. Dec. Flake							1	5.50											1	5.50
Interior Flake									1	.40									1	.40
Retouch Flake					3	.50	4	.90											7	1.40
Broken Flake					3	.30	2	.50	3	.70	1	40							9	1.90
Shatter	1	.60			3	1.40	4	.90	2	1.00	1	60							11	4.50
Modified Flake							1	6.10											1	6.10
Biface Fragment			1	2.30															1	2.30
Flat Abrader							1	2.60	1	2.20									2	4.80
Subtotal	1	.60	1	2.30	10	3.40	13	16.50	8	5.20	4	1.50	1	1.10	0	.00	0	.00	38	30.60
PREHISTORIC CERAMICS																			14	35.10
Kennett Plain			1	1.20	3	7.00	5	17.70	3	3.50	1	1.30	1	4.40					5	16.90
Barnes Corq Marked			1	.20			2	13.80	2	2.90									45	55.80
Neeley's Ferry Plain	2	.20	1	.50	19	20.60	20	29.60	3	4.90									2	15.80
Old Town Red							2	15.80											66	123.60
Subtotal	2	.20	3	1.90	22	27.60	29	76.90	8	11.30	1	1.30	1	4.40	0	.00	0	.00		
MISCELLANEOUS MATERIAL																			1	60
Pebble					1	.60													4	2.20
Fire Cracked Rock			1	.10	2	.20	1	1.90											1	.20
Hematite							1	.20											5	1.30
Bone			4	.20									1	1.10					18	12.90
Burned Clay			1	.50	2	4.50	14	6.70	1	1.20						.20				2.50
Decayed/Carbonized Wood		.60		.70		.70		.30											2	.15
Pigment	2	.15										.90		1.90				.70		5.40
Coal		.30		.20		.90		.50				319.30		304.00		61.70		253.10		1491.10
Concretions		16.10		3.20		68.40		208.80		256.50		320.20		307.00	0	61.90		253.80	31	1516.30
Subtotal	2	17.15	6	4.90	5	75.30	16	218.40	1	257.70			1							
TOTAL	5	17.95	10	9.10	37	106.30	58	311.80	17	274.20	5	323.00	3	312.50	0	61.90		253.80	135	1670.55

Stratum 3. Stratum 3 is composed of a grayish brown to dark grayish brown (10YR4/2) sandy loam containing numerous concretions. Disturbance from crayfish activity is evident at the base of the stratum. This stratum begins at 45 to 47 cm and terminates at 55 cm (including only level 3, 35 cm - 45 cm) where a gradual transition to Stratum 4 is evident. Unlike strata 1 and 2, strata 3 and 4 appear to be natural soil horizons.

Cultural material recovered from Stratum 3 (Table 1) includes a primary decortication flake, retouch flakes (3), broken flakes (3), shatter debris (3), Kennett Plain sherds (3) and Neeley's Ferry Plain sherds (19). Other materials include a sandstone pebble, fire-cracked rock (2), burned clay (2), decayed and partially carbonized wood (.7 g), coal (.9 g) and soil concretions (68.4 g).

Stratum 3 represents the first clearly recognizable ground surface. Whether it is completely in tact or the upper portion of it has been removed during land leveling cannot be determined. Some evidence of contamination is present (i.e., coal and decayed wood fragments) but is not extensive and has likely occurred as a result of natural processes. Altnough Stratum 3 does appear to be relatively undisturbed, no clearly in situ materials were observed and no midden or feature staining was present.

Stratum 4. Stratum 4 is a grayish brown, friable sandy loam containing dark brown concretions. It begins at 45 cm and reaches the base of the excavation at 110 cm. The matrix becomes progressively sandier, drier (and, therefore, lighter in color--10YR5/2-10YR6/2) and more compact with depth until it is a pale brown (10YR6/3) loamy sand at 95 cm. This stratum includes levels 4 through 9.

Cultural materials recovered (primarily between 55 cm and 75 cm) include primary decortication flakes (4), a secondary decortication flake, an interior flake, retouch flakes (4), broken flakes (6), shatter debris (7), a modified flake worked into a steeply retouched end scraper, 2 possible abrader fragments, Kennett Plain sherds (10), Barnes Cord Marked sherds (4), Neeley's Ferry Plain sherds (23) and Old Town Red rim sherds with flared and folded rims (2). Other materials include fire-cracked rock (1), possible hematite (1), bone (1), burned clay (15), decayed and partially carbonized wood (.5 g), coal (4.0 g) and soil concretions (1403.4g) (Table 1).

As with Stratum 3, stratum 4 appears relatively undisturbed, although some contamination in the form of coal and decayed and partially carbonized wood is apparent. Again, natural processes are probably responsible since no evidence of post depositional disturbance, resulting from cultural activities, was observed.

Stratigraphy and Content of Test Unit 120N/15E

Stratum 1. Stratum 1 is composed of a brown to dark brown (10YR4/3) sandy loam and represents dredged material (Figure 8b) . This stratum extended to 23 cm to 24 cm and was excavated with a shovel and discarded, as in unit 140N10E. Plowscars were visible at the base of the stratum.

Stratum 2. Stratum 2 consists of a very dark grayish brown (10YR3/2) sandy loam to a depth of 39 cm to 45 cm. At the base of level 1 (35 cm) a dark yellowish brown sandy disturbance began to appear. By the the base of level 2 (45 cm) the entire unit was involved. The presence of Stratum 2 over an otherwise heavily disturbed deposit

further supports the conclusion that this stratum may be the result of land leveling activities.

Cultural materials recovered from Stratum 2 (Table 2) include retouch flakes (6), a broken flake, shatter debris (4), a Kennett Plain sherd and Neeley's Ferry Plain sherds (9). Other materials include bone (2), a slate or shale fragment, charcoal (10.3 g), coal (10.2 g) and soil concretions (15.5 g).

Disturbed Zone. Four more levels were removed in the hope that the disturbance would be shallow, however, the unit was terminated at 85 cm when it became evident that the disturbance penetrated below the depth of the cultural deposits found in test unit 140N/10E. The distribution of artifacts by level (Table 2) also suggests that the deposits have been churned to some degree, since the kinds and relative amounts of materials in levels below Stratum 2 are very much alike.

Data Recovered from Posthole Tests

It was readily apparent that the distribution of surface materials could not be used as an indicator of the horizontal dimensions of the site since these materials had been redeposited. Therefore, a series of 21 posthole tests was excavated to aid in determining the site dimensions and to provide further data on site integrity. Notes regarding stratigraphy and content are presented in Table 3. The strata noted in Table 3 are those found in test unit 140N/10E. Other soils encountered are described but not assigned to any of the strata. Materials recovered from the posthole tests are presented in Table 4.

Eleven of the 21 posthole tests (at grid coordinates 0N/10E, 20N/10E, 40N/10E, 60N/10E, 100N/10E, 160N/10E, 0N/25E, 20N/25E, 100N/25E, 160N/25E and 140N/45E) revealed evidence of disturbance below the plowzone or the dredged material. This primarily took the form of unexpected variability in the soils encountered, and/or the presence of coal and decayed wood. The latter are believed to have been deposited during the initial ditch excavation or subsequent episodes of ditch clean-out. Mr. Hadnock noted that the ditch was cleaned out in 1925 and again in 1945. Other evidence for disturbance was found in test unit 120N/15E and the 1 m x 2 m test unit excavated by IRI. The matrix of level 3 in the IRI unit is described as a "sandy loam with clay and pure sand inclusions" (IRI site form) and appears to be similar to the disturbance documented by us in test unit 120N15E.

Posthole tests from which cultural materials were recovered below the plowzone or the dredged material (in the case of the 10E transect), and that did not yield evidence of disturbance include 120N/10E, 60N/25E, 120N/25E and 140N/25E. One Kennett Plain sherd was recovered from the 20 cm - 30 cm level of test 100N/25E, however, evidence of disturbance was also present.

Nature of the Deposits at 23DU253

Evidence of extensive disturbance was discovered at and immediately surrounding 23DU253. It is possible that the upper portion of the site (i.e., Stratum 3) was removed and spread about during land leveling activities. The abrupt, horizontal boundary between strata 2 and 3 in test unit 140N/10E supports this possibility. If the apparent poor preservation of organic remains and a lack of evidence for in situ

TABLE 2
MATERIAL RECOVERED FROM TEST UNIT 120N/15E AT 23DU253

TEST UNIT 120N/15E	Level 1 25-35 cmbs		Level 2 35-45 cmbs		Level 3 45-55 cmbs		Level 4 55-65 cmbs		Level 5 65-75 cmbs		Level 6 75-85 cmbs		TOTAL	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
PREHISTORIC LITHICS														
Retouch Flake	4	.60	2	.20	2	.20	5	.60	3	.70			16	2.30
Broken Flake			1	.20					1	.20	1	.50	3	.90
Shatter	4	1.70			5	8.30	4	2.80	2	1.70			15	14.50
Subtotal	8	2.30	3	.40	7	8.50	9	3.40	6	2.60	1	.50	34	17.70
PREHISTORIC CERAMICS														
Kennett Plain	1	1.50			3	12.30	20	11.50	17	16.50	6	4.60	47	46.40
Barnes Cord Marked					3	7.10	2	6.70	3	6.70	2	3.70	10	24.20
Neeley's Ferry Plain	6	1.60	3	1.80	14	10.90	14	15.20	19	10.00	5	4.80	61	44.30
Subtotal	7	3.10	3	1.80	20	30.30	36	33.40	39	33.20	13	13.10	118	114.90
MISCELLANEOUS MATERIAL														
Fire Cracked Rock									1	.80	1	.10	2	.90
Burned Clay					1	.40	1	.70	1	2.40			3	3.50
Bone	2	.60											2	.60
Slate/Shale	1	.60											1	.60
Charcoal		.20		10.10										10.30
Coal		.20		10.00		55.90		44.20		58.30		24.10		192.70
Concretions		15.20		.30		54.40		60.20		138.00		96.30		364.40
Subtotal	3	16.80	0	20.40	1	110.70	1	105.10	2	199.50	1	120.50	8	573.00
TOTAL	18	22.20	6	22.60	28	149.50	46	141.90	47	235.30	15	134.10	160	705.60

TABLE 3. STRATIGRAPHIC DATA FOR POSTHOLE TESTS AT 23DU253

Grid Coordinate	Depth	Strata Present
0N/25E	0-25 cm	Stratum 2
	25-50 cm	Dense sandy clay
20N/25E	0-60 cm	Disturbed sandy soil containing concretions
40N/25E	0-40 cm	Stratum 2
	40-60 cm	Stratum 3
60N/25E	0-50 cm	Stratum 2
80N/25E	0-30 cm	Stratum 2
	30-40 cm	Clayey sand
100N/25E	0-20 cm	Stratum 2
	20-30 cm	Stratum 3
	30-35 cm	Yellowish brown sand
	35-60 cm	Clayey sand
120N/25E	0-23 cm	Stratum 2
	23-35 cm	Stratum 3
	35-70 cm	Stratum 4
140N/25E	0-23 cm	Stratum 2
	23-40 cm	Stratum 3
	40-60 cm	Stratum 4
160N/25E	0-20 cm	Stratum 2
	20-30 cm	Stratum 3
	30-40 cm	Yellowish brown sand
	40-50 cm	Grayish brown sand
0N/10E	0-50 cm	Stratum 1
	50-60 cm	Stratum 2
	60-65 cm	Stratum 3
	65-80 cm	Clayey sand
20N/10E	0-35 cm	Stratum 1
	35-50 cm	Stratum 2
	50-60 cm	Sandy clay
40N/10E	0-36 cm	Stratum 1
	36-60 cm	Stratum 2
	60-80 cm	Stratum 3
60N/10E	0-40 cm	Stratum 1
	40-80 cm	Some of Stratum 2; disturbed clay soils
80N/10E	0-50 cm	Stratum 1
	50-70 cm	Stratum 2
	70-80 cm	Stratum 3
100N/10E	0-45 cm	Stratum 1
	45-55 cm	Stratum 2
	55-65 cm	Stratum 3
	65-75 cm	Disturbed
120N/10E	0-40 cm	Stratum 1
	40-50 cm	Stratum 2
	50-60 cm	Stratum 3
	60-80 cm	Stratum 4
160N/10E	0-35 cm	Stratum 1
	35-45 cm	Stratum 2
	45-55 cm	Stratum 3; disturbed
180N/10E	0-40 cm	Stratum 1
	40-50 cm	Stratum 2
	50-60 cm	Stratum 3
	60-70 cm	Stratum 4 (?)
100N/45E	0-10 cm	Sandy clay
	10-50 cm	Clay
120N/45E	0-10 cm	Stratum 2
	10-30 cm	Sandy clay
140N/45E	0-10 cm	Stratum 2
	10-40 cm	Sandy clay

TABLE 4
MATERIAL RECOVERED FROM POSTHOLES AT 23DU253

POSTHOLE	0N/25E		0N/25E		0N/25E		20N/25E		20N/25E		20N/25E		
CMBS	10-20		20-30		30-40		0-10		10-20		[illegible]		
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	C
PREHISTORIC LITHICS													
Retouch Flake													
Shatter													
Subtotal	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	
PREHISTORIC CERAMICS													
Kennett Plain													
Neeley's Ferry Plain													
Subtotal	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	
MISCELLANEOUS MATERIAL													
Pebble	1	.30											
Fire Cracked Rock													
Bone													
Burned Clay													
Carbonized/Decayed Wood													
Concretions		1.10		2.10				108.30		230.00		[illegible]	
Sandstone													
Charcoal						.10							
Coal				.60									
Iron													
Subtotal	1	1.40	0	2.70	0	.10	0	108.30	0	230.00	0	[illegible]	
TOTAL	1	1.40	0	2.70	0	.10	0	108.30	0	230.00	0	[illegible]	

POSTHOLE	20N/10E		40N/10E		40N/10E		40N/10E		40N/10E		40N/10E		
CMBS	50-60		0-30		30-40		40-50		50-60		60-70		
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	C
PREHISTORIC LITHICS													
Retouch Flake													
Shatter			2	.80									
Subtotal	0	.00	2	.80	0	.00	0	.00	0	.00	0	.00	
PREHISTORIC CERAMICS													
Kennett Plain													
Neeley's Ferry Plain													
Subtotal	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	
MISCELLANEOUS MATERIAL													
Pebble			1	.30									
Fire Cracked Rock													
Bone													
Burned Clay								17.90		175.00		43.80	
Carbonized/Decayed Wood		22.50				.40							
Concretions				14.10		4.20							
Sandstone													
Charcoal								1.40		.20			
Coal		4.10		1.10		.80							
Iron			1	1.30									
Subtotal	0	26.60	2	16.80	0	5.40	0	19.30	0	175.20	0	43.80	
TOTAL	0	26.60	4	17.60	0	5.40	0	19.30	0	175.20	0	43.80	

	20N/25E 30-40		20N/25E 40-50		20N/25E 50-60		40N/25E 0-10		40N/25E 10-20		40N/25E 20-30		40N/25E 30-40		40N/25E 40-50	
	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.
	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
							1	.30								
	0	.00	0	.00	0	.00	1	.30	0	.00	0	.00	0	.00	0	.00
							1	.40								
											1	.10				
							1	.60								
0		185.40		70.60		81.50		1.00		3.80		.20			1	.20
										.10				.20		.20
0	0	185.40	0	70.60	0	81.50	2	2.00	0	3.90	1	.30	0	.20	1	.40
0	0	185.40	0	70.60	0	81.50	5	2.30	0	3.90	1	.30	0	.20	1	.40

	40N/10E 70-80		60N/25E 40-50		80N/25E 10-20		80N/25E 20-30		100N/25E 0-10		100N/25E 10-20		100N/25E 20-30		100N/25E 30-40	
	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.	Cr.	Wt.
											1	.20				
0	0	.00	0	.00	0	.00	0	.00	0	.00	1	.20	0	.00	0	.00
									1	2.20			1	.20		
			1	6.30												
0	0	.00	1	6.30	0	.00	0	.00	1	2.20	0	.00	1	.20	0	.00
					1	.20	1	.50								
0		183.00					1	.80								
														.01		
										.20						
											1	.50				
												1.00				
														2.50	1	.20
0	0	183.00	0	.00	1	.20	2	1.30	0	.20	1	1.50	0	2.51	1	.20
0	0	183.00	1	6.30	1	.20	2	1.30	1	2.40	2	1.70	1	2.71	1	.20

TABLE 4 Continued

POSTHOLE	100N/25E		120N/25E		120N/25E		140N/25E		140N/25E		140N/25E		
CMBS	40-50		0-25		35-45		23-30		30-40		40-50		
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	C
PREHISTORIC LITHICS													
Retouch Flake													
Shatter													
Subtotal	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	
PREHISTORIC CERAMICS													
Kennett Plain					2	.30							
Beeley's Ferry Plain					4	1.10	3	8.20					
Subtotal	0	.00	0	.00	6	1.40	3	8.20	0	.00	0	.00	
MISCELLANEOUS MATERIAL													
Pebble													
Fire Cracked Rock													
Bone													
Burned Clay							1	.50					
Carbonized/Decayed Wood													
Concretions				1.50		1.00		4.70		8.20		15.30	
Sandstone													
Charcoal													
Coal		.60											
Iron													
Subtotal	0	.60	0	1.50	0	1.00	1	5.20	0	8.20	0	15.30	
TOTAL	0	.60	0	1.50	6	2.40	4	13.40	0	8.20	0	15.30	

POSTHOLE	120N/10E		120N/10E	
CMBS	50-60		70-80	
	Ct.	Wt.	Ct.	Wt.
PREHISTORIC LITHICS				
Retouch Flake	1	.10		
Shatter				
Subtotal	1	.10	0	.00
PREHISTORIC CERAMICS				
Kennett Plain				
Beeley's Ferry Plain			1	.50
Subtotal	0	.00	1	.50
MISCELLANEOUS MATERIAL				
Pebble				
Fire Cracked Rock				
Bone				
Burned Clay				
Carbonized/Decayed Wood				
Concretions				.70
Sandstone				
Charcoal		.20		
Coal				
Iron				
Subtotal	0	.20	0	.70
TOTAL	1	.30	1	1.20

5E	140N/25E 50-60		160N/25E 20-30		160N/25E 40-50		0N/10E 0-50		0N/10E 70-80		20N/10E 0-30		20N/10E 30-40		20N/10E 40-50	
Wr.	Cr.	Wr.	Cr.	Wr.	Cr.	Wr.	Cr.	Wr.	Cr.	Wr.	Cr.	Wr.	Cr.	Wr.	Cr.	Wr.
							0	.00								
.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
							0	.00								
.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
							22	13.70			2	1.20				
													1	6.60		
.30		99.70				.20		.60						.80		1.60
				.10		.50		2.62		.10		.60		25.80		193.70
.30	0	99.70	0	.10	0	.70	22	16.32	0	.10	3	2.70	1	26.40	0	195.30
.30	0	99.70	0	.10	0	.70	22	16.32	0	.10	3	2.70	1	26.40	0	195.30

materials is added to the obvious disturbances, the probability that significant new data can be recovered from 23DU253 becomes very low.

Horizontal and Vertical Extent of 23DU253

Horizontal Extent. The subsurface data collected by HPA indicate that 23DU253 is approximately 1500 square meters in horizontal extent. The southern and northern boundaries appear to be located at about 110N and 150N, respectively, while the eastern boundary lies at about 35E. The western boundary is defined by Upper Buffalo Creek Ditch. The southern boundary could be extended at the southwest corner to include posthole test 100N/25E, but we have not done so because of the evidence for disturbance also recovered from this test. Likewise, the sherd recovered from posthole test 60N/25E has not been taken to mean that the site boundaries should be expanded to include it because of its obvious anomalous location.

Vertical Extent. The best evidence for site depth was recovered from test unit 140N/10E. We believe that these data show that the base of the primary archeological deposits is only slightly deeper than the 75 cm level, despite the presence of a few artifacts in the 2 levels below that. In strictly arbitrary terms, the cultural deposits terminate at 95 cm, however, it seems more likely that the base of the primary deposits is at about 75 cm, with deeper materials having been redeposited by natural means.

The only remaining problem is how deep below the original ground surface the deposits may have extended. If the top of Stratum 2 (25 cm below datum) is considered as the original ground surface, the deposits would have been roughly 50 cm deep. If the top of Stratum 3 (45 cm below datum) is used, then the deposits would have been only about 30 cm deep. We believe that the data best supports the second alternative since the bulk of the materials recovered came from strata 3 and 4. Keep in mind, however, that the question as to whether or not some of the upper deposits of Stratum 3 have been removed by land leveling remains unanswered.

Cultural-Historical Position of 23DU253

Evidence was recovered indicating that the site was occupied during two prehistoric periods. The Kennett Plain and Barnes Cord Marked sherds suggest a Dunklin Phase Woodland occupation. The Dunklin Phase at the Zebree site in northeast Arkansas yielded radiocarbon dates of 691±74, 829±70 and 863±84. These dates are believed to be late in the phase (Morse and Morse 1983:182).

The Mississippi Plain, var. Neeley's Ferry and the Old Town Red, var. unspecified indicate an early Mississippi affiliation. Phillips (1970:147) notes that Old Town Red, var. St. Francis is a marker for the Malden Plain Phase, but reserves the Varney Red, var. Varney type for salt pans only. Morse and Morse (1983:218-221) regard Varney Red Filmed as a variety of Old Town Red and include a wide variety of vessel forms. In any case, an early Mississippi affiliation is indicated.

No evidence of an Archaic Period occupation was recovered.

Activities at 23DU253

Little evidence for functional activities was recovered at 23DU253. Some indications of tool maintenance, in the form of retouch flakes, was

found, but only a little evidence of tool manufacture, in the form of decortication flakes and preforms was recovered. The steeply chipped end scraper may be indicative of wood or bone working activities (House 1975:62). The fire-cracked rock indicates the possibility that some heat treating of lithics occurred, but these could also have resulted from accidental burning or cooking activities. The ceramics indicate that food preparation and/or storage took place at the site.

The data suggest that 23DU253 functioned as a habitation site, but other supporting data such as evidence of structures and storage facilities are lacking. On the other hand, there are no indications that the area functioned as a specialized activity site, such as a hunting camp or gathering station. A best guess, based on artifact content and the apparent small size of the site, would be that 23DU253 functioned as a seasonal habitation.

Other Considerations

When IRI conducted their original survey and assessment of the resources along the ditch corridor, they recorded another prehistoric archeological site (23DU252) on the west side of the ditch immediately adjacent to 23DU253. The artifact assemblages represented at the two sites are substantially similar with Barnes Plain, Barnes Cord Marked, Neeley's Ferry Plain and red slipped sherds along with a variety of lithic debris found at both.

The IRI report (1980:115) concluded that 23DU252 should be considered eligible for the National Register, based on its potential for contributing significant new data concerning Late Archaic through Mississippi Period activities in the lowlands of southeast Missouri. Given the assembled data, it is likely, if not probable, that the original excavation of Upper Buffalo Ditch bisected one site whose major and most substantial deposits survived on the west side of the channel. The Mangrum site (3CG636), located in northeast Arkansas, represents a similar circumstance (Klinger 1982). In that case, however, archeological evidence from both sides of the channel were compared and the decision to treat them as part of the same site was made.

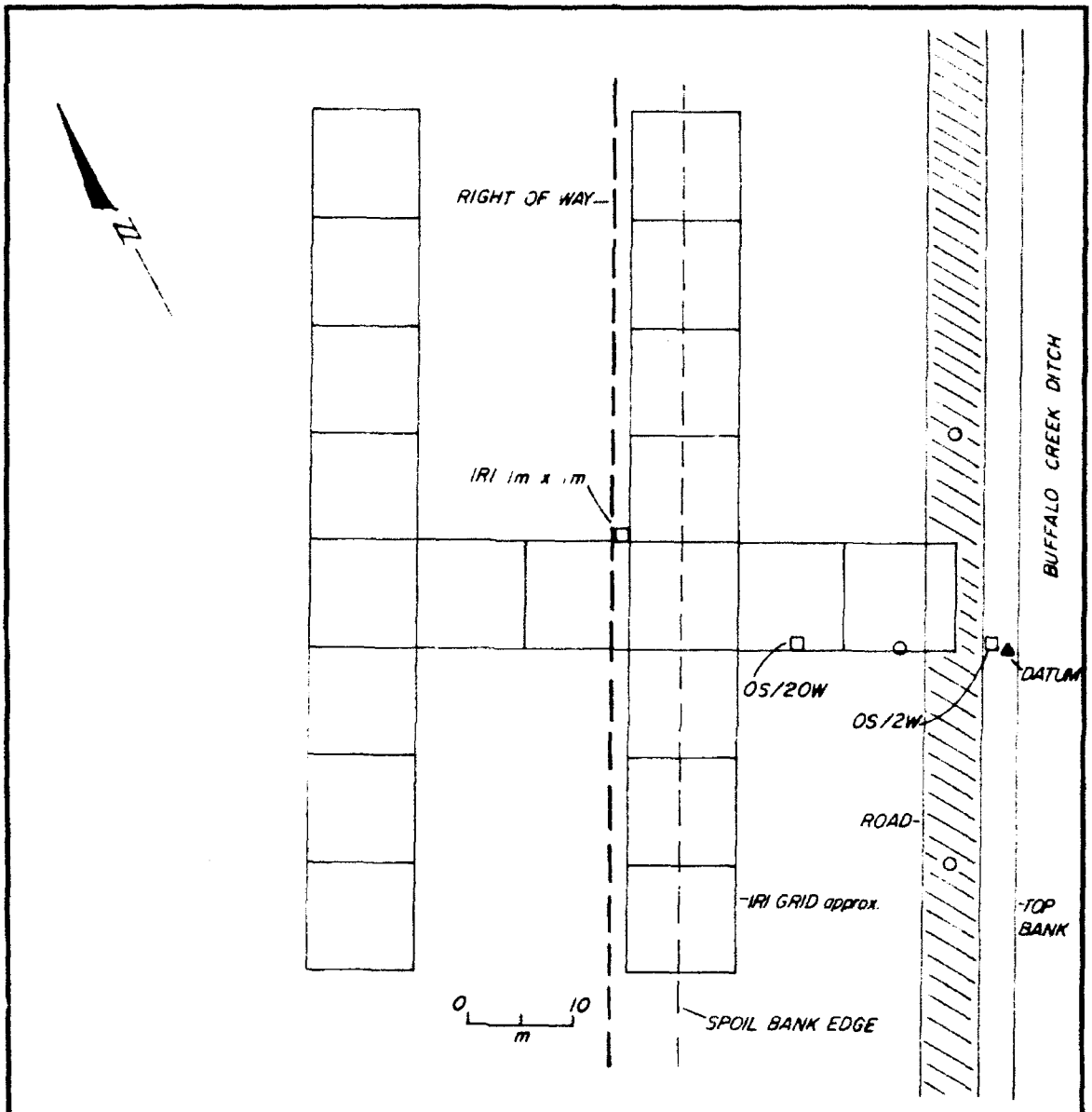
Some of the confusion about the integrity of 23DU253 undoubtedly stems from a misinterpretation that 23DU253 represents an independent archeological entity. It is almost surely the case that 23DU253 represents the easternmost extent of 23DU252 and that a substantial portion of this site was lost as a result of the original channel excavation.

Results of the Investigations at 23DU258

Slightly more than one day's work at 23DU258 provided data conclusively demonstrating that at least the prehistoric component of this site is composed of material redeposited during the excavation or subsequent maintenance of Upper Buffalo Creek Ditch.

Data Recovered from 1 m x 1 m Test Units

Test unit 0S/20W provided the clearest evidence regarding the nature of 23DU258, but data (or a lack thereof) recovered from test unit 0S/2W also proved useful (Figure 9).



posthole test
O no artifacts

23DU258

SCALE: As Shown	Contract No. DACW66-83-M-1876	DRAWN BY
DATE: 1 Dec 1983		REVISED

Map of 23DU258 showing locations of HPA and IRI work

Figure 9

Stratigraphy and Content of Unit 0S/20W

Stratum 1. As at 23DU253, Stratum 1 at 23DU258 is composed of soil excavated from upper Buffalo Creek Ditch and consists of a brown to dark brown (10YR4/3) sandy loam to a depth of 33 cm (Figure 10a). Cultural materials recovered from this stratum include a primary decortication flake, retouch flakes (2), shatter (1), a Barnes Cord Marked sherd and sherds of glass (2). Other materials include mussel shell fragments (2), coal (18.2 g), pebbles (2), decayed wood (.3 g), burned clay (1) and soil concretions (90.0 g).

Stratum 2. Stratum 2 begins at 33 cm and extends to the base of the excavation 70 cm below the surface. It is composed of a very compact, very dark grayish brown (10YR3/2) silty clay that was nearly impossible to screen. Dark brown to black soil concretions were present in the matrix, but no cultural materials were recovered.

Stratigraphy and Content of Test Unit 0S/2W

Stratum 1. Stratum 1 is composed dredged material and includes a variety of soil textures and colors to a depth of 90 cm (Figure 10b). This stratum was not screened but a primary decortication flake, an interior flake and one large concretion were recovered.

Stratum 2. Stratum 2 is composed of a yellowish brown (10YR5/6) sand containing dark yellowisn brown concretions, decayed and partially burned wood and fragments of coal. This stratum extended to the base of the unit at 130 cm. A posthole test in the northeast corner of the unit detected dark grayish brown silty clay underlying Stratum 2 at 150 cm.

Data Recovered from the Posthole Tests

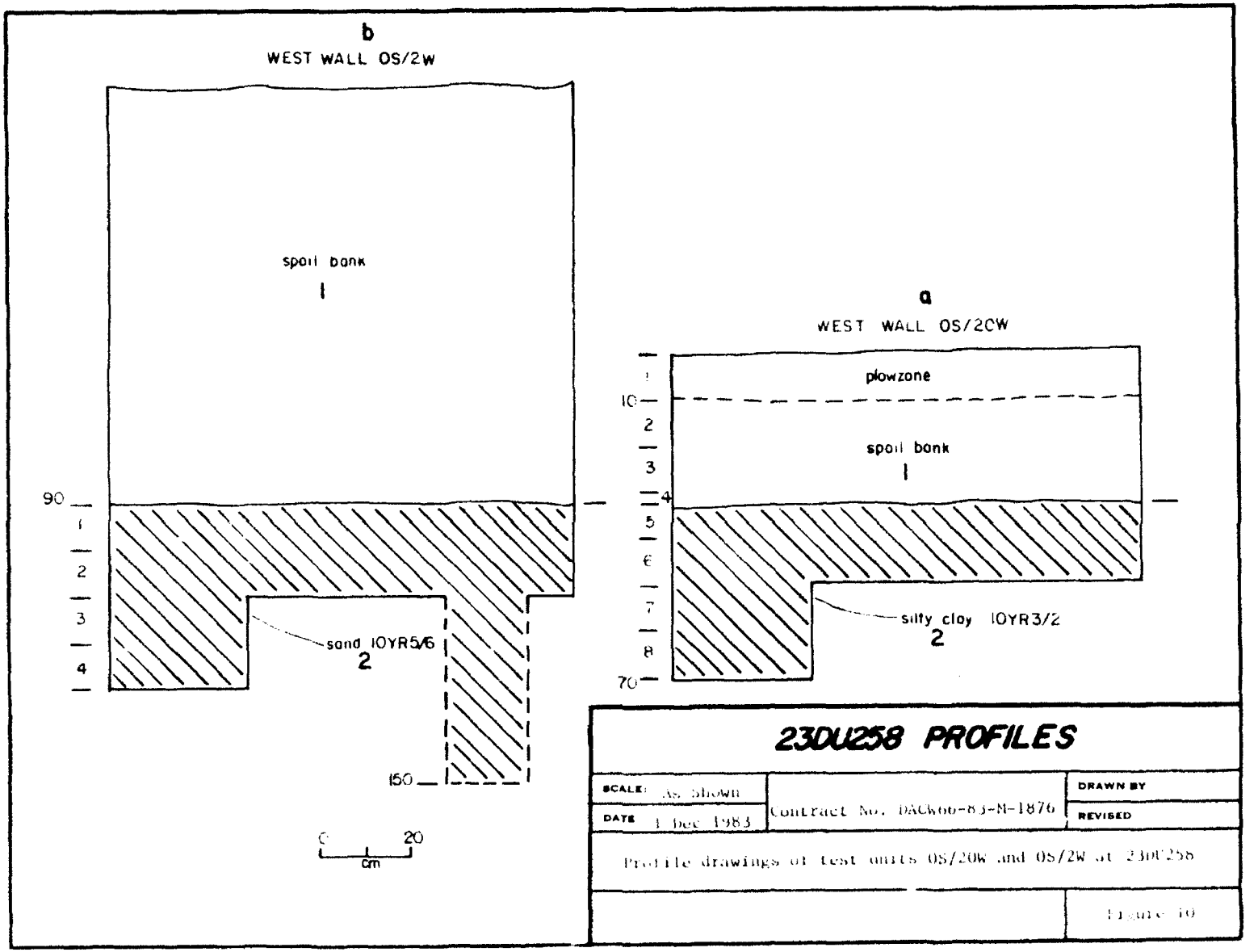
Three posthole tests were excavated to expand our areal coverage and to confirm the results obtained in the 1 m x 1 m excavations. The test at 20N/5W yielded concretions and decayed wood at a depth of 80 cm - 100 cm below surface while the test at 0S/10W yielded fragments of coal and charcoal between 40 cm and 80 cm below the surface. The test at 20S/5W was culturally sterile. Stratigraphic data for these tests are presented in Table 5.

Interpretation of the Data

The data recovered demonstrate that the prehistoric component at 23DU258 is composed of material redeposited with the dredged material. We recovered little evidence of an historic component, probably due to poor surface visibility. We see no reason to doubt that a historic component exists at the site, but we can provide little additional data regarding its nature. It does not appear to be material redeposited with the dredged material, since we recovered little in the way of historic artifacts from our test units. While IRI's assessment of the site seems justified, we believe that it is also possible that the materials may be indicative of a historic trash dump.

SIGNIFICANCE, IMPACTS AND RECOMMENDATIONS

The intensity of the field investigations conducted at 23DU253 and 23DU258 was sufficient to determine whether either of the sites contained data which could be considered potentially significant from a



23OU258 PROFILES

SCALE: As Shown	Contract No. DACW66-83-M-1876	DRAWN BY
DATE 1 Dec 1983		REVISED

Profile drawings of test units OS/20W and OS/2W at 23OU258

Figure 10

TABLE 5. STRATIGRAPHIC DATA FOR POSTHOLE TESTS AT 23DU258

Grid Coordinate	Depth Below Surface	Strata Present
20N/5W	0-40 cm	Dredged material
	40-70 cm	Compact, grayisn brown (10YR5/2) sandy loam
	70-80 cm	More compact with concretions and coal
	80-100 cm	Concretions and decayed wood
0S/10W	0-50 cm	Dredged material
	50-74 cm	Compact brownish yellow (10YR6/6) sand
	74-80 cm	Sand with inclusions of compact dark brown (10YR3/3) silty clay loam, disturbed
20S/5W	0-60 cm	Dredged material
	60-90 cm	Compact grayisn brown sandy loam

local, state or national perspective. The artifact scatter represented by 23DU258 is in an entirely redeposited context and is from an unknown origin. The artifacts could be from anywhere along the ditch corridor. Historic artifacts at the site likely represent 20th century refuse disposal. Prehistoric artifacts found at 23DU253 are also found in primarily disturbed contexts. This area almost surely represents the easternmost extent of 23DU252, a site recorded by Iroquois Research Institute on the west side of the channel. Archeological data in this area are scant with no evidence of midden or subsurface features.

Neither of the sites tested are considered eligible for nomination to the National Register of Historic Places. In each case the areas will be impacted by channel maintenance activities and no additional cultural resources work is recommended.

It is recommended, however, that if additional resources are discovered during the maintenance operations, the Memphis District of the U.S. Army Corps of Engineers and the Missouri Department of Natural Resources, Historic Preservation Program should be contacted immediately. Of particular note in this context are reported instances of pliestocene megafauna being found during the original channel excavation. A local resident (Mr. Hadhock) indicated that several large bones had been exposed along various portions of the channel and that many were collected by workmen and other interested parties. The District should be aware of the potential for similar finds along the right-of-way.

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SECTION C

SCOPE OF WORK

Archeological Testing of Archeological Sites 23DU253 and 23DU258, Upper Buffalo Creek Ditch Enlargement Project, Dunklin County, Missouri.

1. General

1.01. The Contractor shall conduct archeological testing of Upper Buffalo Creek Ditch Enlargement Project, Dunklin County, Missouri. These tasks are in partial fulfillment of the Memphis District's obligations under the National Historic Preservation Act of 1966 (P.L. 89-665); the National Environment Policy Act of 1969 (P.L. 91-190); Executive Order 11593, "Protection and Enhancement of Cultural Environment," 13 May 1971 (360FR3921); Preservation of Historic and Archeological Data, 1974 (P.L. 93-291); and the Advisory Council on Historic Preservation, "Procedures for the Protection of Historic and Cultural Properties" (36 CFR 8, Part 800).

1.02. Personnel Standards

a. The Contractor shall utilize a systematic, interdisciplinary approach to conducting the study. Specialized knowledge and skills will be used during the course of the study to include expertise in archeology, history, architecture, geology and other disciplines as required. Techniques and methodologies used for the study shall be representative of the state of current professional knowledge and development.

b. The following minimal experiential and academic standards shall apply to personnel involved in cultural resources investigations described in this Scope of Work:

1. Archeological Project Directors or Principal Investigators (PI). Individuals in charge of an archeological project or research investigation contract, in addition to meeting the appropriate standards for archeologist, must have a publication record that demonstrates extensive experience in successful field project formulation, execution and technical monograph reporting. The Contracting Officer may also require suitable professional references to obtain estimates regarding the adequacy of prior work.

2. Archeologist. The minimum formal qualifications for individuals practicing archeology as a profession are a B.A. or B.S. degree from an accredited college or university, followed by a minimum of two years of successful graduate study with concentration in anthropology and specialization in archeology and at least two summer field schools or their equivalent under the supervision of archeologists of recognized competence. A Master's thesis or its equivalent in research and publication is highly recommended, as in the M.A. degree.

3. Other Professional Personnel. All non-archeological personnel utilized for their special knowledge and expertise must have a B.A. or B.S. degree from an accredited college or university, followed by a minimum of one year of successful graduate study with concentration in appropriate study.

4. Other Supervisory Personnel. Persons in any archeological supervisory position must hold a B.A., B.S. or M.A. degree with a concentration in archeology and a minimum of 2 years of field and laboratory experience.

5. Crew Members and Lab Workers. All crew members and lab workers must have prior experience compatible with the tasks to be performed under this contract. An academic background in archeology/anthropology is highly recommended.

c. All operations shall be conducted under the supervision of qualified professionals in the discipline appropriate to the data that is to be discovered, described or analyzed. Vitae of personnel involved in project activities may be required by the Contracting Officer at anytime during the period of service of this contract.

1.03. The Contractor shall designate in writing the name of the Principal Investigator. Participation time of the Principal Investigator shall average a minimum of 50 hours per month during the period of service of this contract. In the event of controversy or court challenge, the Principal Investigator shall be available to testify with respect to report findings. The additional services and expenses would be at Government expense, per paragraph 1.08 below.

1.04. The Contractor shall keep standard field records which will include, but are not limited to, field notebooks, state approved site forms

(prehistoric, historic, architectural) field data forms and graphics and photographs. Publishable quality site maps with precise boundaries and proposed impact boundaries will be submitted for each site.

1.05. To conduct the field investigation, the Contractor will obtain all necessary permits, licenses; and approvals from all local, state and Federal authorities. Should it become necessary in the performance of the work and services of the Contractor to secure the right of ingress and egress to perform any of the work required herein on properties not owned or controlled by the Government, the Contractor shall secure the consent of the owner, his representative, or agent, prior to effecting entry on such property.

1.06. Innovative approaches to data location, collection, description and analysis, consistent with other provisions of this purchase order and the Cultural Resources requirements of the Memphis District, are encouraged. Such approaches will require prior consultation with the Contracting Officer and/or his authorized representative.

1.07. No mechanical power equipment shall be utilized in any cultural resource activity without specific written permission of the Contracting Officer.

1.08. Techniques and methodologies used during the testing shall be representative of the current state of knowledge for their respective disciplines.

1.09. The Contractor shall furnish expert personnel to attend conferences and furnish testimony in any judicial proceedings involving the archeological and historical study, evaluation, analysis and report. When required, arrangements for these services and payment therefor will be made by representatives of either the Corps of Engineers or the Department of Justice.

1.10. The Contractor shall supply such graphic aids (ex: profile and plan drawings) or tables as are necessary to provide a ready and clear understanding of special relationships or other data discussed in the text of the report. Such tables or figures shall appear as appropriate in the body of the report.

1.11. The Contractor, prior to the acceptance of the final report, shall not release any sketch, photograph, report or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer.

1.12. The extent and character of the work to be accomplished by the Contractor shall be subject to the general supervision, direction, control and approval of the Contracting Officer. The Contracting Officer may have a representative of the Government present during any or all phases of the described cultural resource project.

2. Study Area.

2.01. The Upper Buffalo Creek Ditch Enlargement Project is located in Dunklin County, Missouri. The proposed improvements include ditch cleanout and piling excavated materials on the ditch banks. The project areas are sites 23DU253 and 23DU258. Both sites can be located on the Kennett, Missouri, 15 minute USGS Quadrangle - Site 23DU258 is at Station No. 651+09, left descending bank. Site 23DU258 is at Station No. 703+17. The Sites are, respectively, approximately 4,600 square meters and 3,700 square meters in size. Iroquois Research Institute excavated one subsurface (1 m X 1 m) test unit in each site.

3. *Definitions*

3.01. "Cultural resources" are defined to include any buildings, site, district, structure, object, data, or other material relating to the history, architecture, archeology, or culture of an area.

3.02. "Background and Literature Search" is defined as a comprehensive examination of existing literature and records for the purpose of inferring the potential presence and character of cultural resources in the study area. The examination may also serve as collateral information to field data in evaluating the eligibility of cultural resources for inclusion in the National Register of Historic Places or in ameliorating losses of significant data in such resources.

3.03. "Intensive Survey" is defined as a comprehensive, systematic, and detailed on-the-ground survey of an area, of sufficient intensity to determine the number, types, extent and distribution of cultural resources present and their relationship to project features.

3.04. "Mitigation" is defined as the amelioration of losses of significant prehistoric, historic, or architectural resources which will be accomplished through preplanned actions to avoid, preserve, protect, or minimize adverse effect upon such resources or to recover a representative sample of the data they contain by implementation of scientific research and other professional techniques and procedures. Mitigation of losses of cultural resources includes, but is not limited to, such measures as: (1) recovery and preservation of an adequate sample of archaeological data to allow for analysis and published interpretation of the cultural and environmental conditions prevailing at the time(s) the area was utilized by man; (2) recording, through architectural quality photographs and/or measured drawings of buildings, structures, districts, sites and objects and deposition of such documentation in the Library of Congress as a part of the National Architectural and Engineering Record; (3) relocation of buildings, structures and objects; (4) modification of plans or authorized projects to provide for preservation of resources in place; (5) reduction or elimination of impacts by engineering solutions to avoid mechanical effects of wave wash, scour, sedimentation and related processes and the effects of saturation.

3.05. "Reconnaissance" is defined as an on-the-ground examination of selected portions of the study area, and related analysis adequate to assess the general nature of resources in the overall study area and the probable impact on resources of alternate plans under consideration. Normally reconnaissance will involve the intensive examination of not more than 15 percent of the total proposed impact area.

3.06. "Significance" is attributable to those cultural resources of historical, architectural, or archeological value when such properties are included in or have been determined by the Secretary of the Interior to be eligible for inclusion in the National Register of Historic Places after evaluation against the criteria contained in How to Complete National Register Forms.

3.07. "Testing" is defined as the systematic removal of the scientific, prehistoric, historic, and/or archeological data that provide an archeological or architectual property with its research or data value. Testing may include controlled surface survey, shovel testing, profiling, and limited subsurface test excavations of the properties to be affected for purposes of research planning, the development of specific plans for research activites, excavation, the development of specific plans for research activities, preparation of notes and records, and other forms of physical removal of data and the material analysis of such data and material, preparation of reports on such data and material and dissemination of reports

and other products of the research. Subsurface testing shall not proceed to the level of mitigation.

3.08. "Analysis" is the systematic examination of material data, environmental data, ethnographic data, written records, or other data which may be prerequisite to adequately evaluating those qualities of cultural loci which contribute to their significance.

4. General Performance Specifications

4.01. The Contractor shall prepare a draft and final report detailing the results of the study and their recommendations.

4.02. Subsurface Data Retreval - Testing

a. Subsurface test units (other than shovel cut units) shall be excavated in levels no greater than 10 centimeters. Where cultural zonation or plow disturbance is present, however, excavated materials shall be removed by zones (and 10 cm levels within zones where possible). Subsurface test units shall extend to a depth of at least 20 centimeters below artifact bearing soils. A portion of each test unit, measured from one corner (of a minimum 30 X 30 centimeters), shall be excavated to a depth of 40 centimeters below artifact bearing soils. All excavated material (including plow zone material) shall be screened using a minimum of 1/4" hardware cloth. Representative profile drawings shall be made of excavated units.

b. The Contractor shall establish a permanent datum at each site which shall be precisely related to the site boundaries as well as to a permanent reference point (in terms of azimuth and distance). If possible, the permanent reference point used shall appear on Government blueline (project) drawings and/or 7.5 minute U.S.G.S. quad maps. If no permanent landmark is available, a permanent datum shall be established in a secure location for use as a reference point. The permanent datum shall be precisely plotted and shown on U.S.G.S. quad maps and project drawings. All descriptions of site location shall refer to the location of the primary site datum.

c. Stringent horizontal spatial control of site specific investigations will be maintined by relating the location of all collection and test units to the primary site datum.

d. Other types of subsurface units may, at the Contractor's option, be utilized in addition to those units required by this Scope of Work.

e. Subsurface investigations will be limited to testing and shall not proceed to the level of mitigation. However, a minimum of five (5) test units shall be placed in each site, in order to provide enough information to make a determination of site eligibility to the National Register of Historic Places.

f. All test units excavated shall be backfilled by the Contractor.

4.03. Anaysis and Curation. Unless otherwise indicated, artifactural and non-artifactural analysis shall be of an adequate level and nature to fulfill the requirements of this Scope of Work. All recovered cultural items shall be cataloged in a manner consistent with state requirements or standards of curation in the state in which the study occurs. The Contractor shall consult with appropriate state officials as soon as possible following the conclusion of fieldwork in order to obtain information (ex: accession numbers) prerequisite to such cataloging procedures. The Contractor shall have access to a depository for notes, photographs and artifacts (preferably in the state in which the study occurs) where they can be permanently available for study by qualified scholars. If such materials are not in Federal ownership, applicable state laws, if any, should be followed concerning the disposition of the materials after the completion of the final report. Efforts to insure the permanent curation of properly cataloged cultural resources materials in an appropriate institution *shall be considered an integral part of the requirements of this Scope of Work.*

5. General Report Requirements.

5.01. The primary purpose of the cultural resources report is to serve as a planning tool which aids the Government in meeting its obligations to preserve and protect our cultural heritage. The report will be in the form of a comprehensive, scholarly document that not only fulfills mandated legal requirements but also serves as a scientific reference for future cultural resources studies. As such, the report's content must be not only descriptive but also analytic in nature.

5.02. Upon completion of all field investigation and research, the Contractor shall prepare reports detailing the work accomplished, the results, the recommendations, and appropriate alternative mitigation measures, when required, for each project area. The format suggested by Guidelines for Contract Cultural Resource Survey Reports and Professional Qualifications as prepared by the Missori Department of Natural Resources should be reviewed and, to the extent allowed by this Scope of Work utilized as an aid in preparing the required report.

5.03. The report shall include, but not necessarily be limited to, the following sections and items:

a. Title Page. The title page should provide the following information; the type of task undertaken, the cultural resources which were assessed (archeological, historical, architectural); the project name and location (county and state), the date of the report; the Contractor's name; the purchase order number; the name of the author(s) and/or the Principal Investigator; and the agency for which the report is being prepared.

b. Abstract. The abstract should include a summary of the number and types of resources which were tested, results of activities and the recommendations of the Principal Investigator.

c. Table of Contents.

d. Introduction. This section shall include the purpose of the report; a description of the proposed project; a map of the general area; a project map; and the dates during which the task was conducted. The introduction shall also contain the name of the institution where recovered materials will be curated.

e. Environmental Context. This section shall contain, but not be limited to, a discussion of probable past floral and faunal characteristics of the project area. Since data in this section will be used in the evaluation of specific cultural resource significance, it is imperative that the quantity and quality of environmental data be sufficient to allow detailed analysis of the relationship between past cultural activities and environmental variables.

f. Previous Research. This section shall describe previous research which may be useful in deriving or interpreting relevant background research data, problem domains, or research questions and in providing a context in which to examine the significance of cultural resources.

g. Testing and Analytical Methods. This section shall contain an explicit discussion of research strategy, and should demonstrate how such information as environmental data, previous research data, and personal interviews have been utilized in constructing such a strategy.

h. Testing and Analytical Results. This section shall discuss resources tested and analyzed; the nature and results of analysis, and the scientific

importance or significance of the work. Quantified listings and descriptions of artifacts and their proveniences may be included in this section or added to the report as an appendix. Tested sites shall include a site number.

i. Conclusions and Recommendations. This section shall contain the recommendations of the Principal Investigator, regarding all contract activities. Conclusions derived from testing activities concerning the nature, quantity and distribution of cultural items should be used in describing the probable impact of project work on cultural resources.

j. Reference (American Antiquity style).

k. Appendices (Maps, correspondence, etc.). A copy of this Scope of Work shall be included as an appendix in all reports.

5.04. The above items do not necessarily have to be discrete sections; however, they should be readily discernable to the reader. The detail of the above items may vary somewhat with the purpose and nature of the study.

5.05. In order to prevent potential damage to cultural resources, no information shall appear in the body of the report which would reveal precise resource location. All maps which indicate or imply precise site locations shall be included in reports as a readily removable appendix (ex: envelope).

5.06. No logo or other such organizational designation shall appear in any part of the report (including tables or figures) other than the title page.

5.07. Unless specifically authorized by the Contracting Officer, all reports shall utilize permanent site numbers assigned by the state in which the study occurs.

5.08. All appropriate information (including typologies and other classificatory units) not generated in these purchase order activities shall be suitably referenced.

5.09. Reports detailing testing activities shall contain site specific maps. Site maps shall indicate site datum(s), location of data collection units (including shovel cuts, subsurface test units and surface collection units); site boundaries in relation to proposed project activites, site grid systems *(where appropriate) and such other items as the Contractor may deem* appropriate to the purposes of this purchase order.

5.10. Information shall be presented in textual, tabular, and graphic forms, whichever are most appropriate, effective and advantageous to communicate necessary information. All tables, figures and maps appearing in the report shall be of publishable quality.

5.11. Any abbreviated phrases used in the text shall be spelled out when the phase first occurs in the text. For example use "State Historic Preservation Officer (SHPO)" in the intial reference and thereafter "SHPO" may be used.

5.12. The first time the common name of a biological species is used it should be followed by the scientific name.

5.13. In addition to street addresses or property names, sites shall be located on the Universal Transverse Mercator (UTM) grid.

5.14. All measurements should be metric. If the Contractor's equipment is in the English system, then the metric equivalents should follow in parentheses.

5.15. As appropriate, diagnostic and/or unique artifacts, cultural resources or their contexts shall be shown by drawings or photographs.

5.16. Black and white photographs are preferred except when color changes are important for understanding the data being presented. No instant type photographs may be used.

5.17. Negatives of all black and white photographs and/or color slides of all plates included in the final report shall be submitted so that copies for distribution can be made.

6. Submittals.

6.01. The Contractor shall, unless delayed due to causes beyond his fault or negligence, complete all work and services under the purchase order within the following time limitations after receipt of notice to proceed.

a. Six (6) copies of the draft report will be submitted within 30 calendar days following receipt of notice to proceed.

b. The Government shall review the draft report and provide comments to the Contractor within 20 calendar days after receipt of the Government's comments on the draft report.

c. An original and 20 bound copies of the final report shall be submitted within 30 calendar days following the Contractor's receipt of the Government's comments on the draft report.

6.02. If the Government review exceeds 20 calendar days, the period of service of the purchase order shall be extended on a day-by-day basis equal to any additional time required by the Government for review.

6.03. The Contractor shall submit under separate cover 6 copies of appropriate 15' quadrangle maps (7.5' when available) and other site drawings which show exact boundaries of all cultural resources within the project area and their relationship to project features, and single copies of all forms, records and photographs described in paragraph 1.04.

6.04. The Contractor shall submit to the Contracting Officer completed National Register forms including photographs, maps, and drawings in accordance with the National Register Program if the sites tested are found

to meet the criteria of eligibility for nomination and for determination of significance. The completed National Register forms are to be submitted with the final report.

6.05. At any time during the period of service of this contract, upon the written request of the Contracting Officer, the Contractor shall submit, within 30 calendar days, any portion or all field records described in paragraph 1.04 without additional cost to the Government.

7. Schedule

7.01. The Contractor shall, unless delayed due to causes beyond his control and without his fault or negligence, complete all work and services under this contract within the following time limitations.

Activity	Due Date (Beginning with acknowledged date of receipt of notice to proceed)
Begin Testing of Sites 23DU253 and 23DU258, Upper Buffalo Creek Ditch, Dunklin County, Missouri	10 calendar days
Submittal of Draft Report	30 calendar days

Government Review of Draft Reports	50 calendar days
Contractor's Submittal of Final Reports	80 calendar days

7.02. The Contractor shall make any required corrections after review by the Contracting Officer of the reports. In the event that any of the Government review periods are exceeded and upon request of the Contractor, the purchase order period will be extended on a calendar day-for-day basis. Such extension shall be granted at no additional cost to the Government.

8. Method of Payment.

8.01. Upon satisfactory completion of work by the Contractor, in accordance with the provisions of this purchase order, and its acceptance by the Contracting officer, the Contractor will be paid the amount of money indicated in Block 25 of the purchase order.

8.02. If the Contractor's work is found to be unsatisfactory and if it is determined that fault or negligence on the part of the Contractor of his employees has caused the unsatisfactory condition, the Contractor will be liable for all costs in connection with correcting the unsatisfactory work. The work may be performed by Government forces or Contractor forces at the direction of the Contracting Officer. In any event, the Contractor will be

held responsible for all costs required for correction of the unsatisfactory work, including payments for services, automotive expenses, equipment rental, supervision, and any other costs in connection therewith, where such unsatisfactory work as deemed by the Contracting Officer to be the result of carelessness, incompetent performance or negligence by the Contractor's employees. The Contractor will not be held liable for any work or type of work not covered by this purchase order.

8.03. Prior to settlement upon termination of the purchase order, and as a condition precendent thereto, the Contractor shall execute and deliver to the Contracting Officer a release of all claims against the Government arising under or by virtue of the purchase order, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein.

PROJECT PARTICIPANTS

DAN HAINES assisted in the fieldwork. Mr. Haines received a B.A. degree in Anthropology from the University of Oklahoma, Norman in 1981.

STEVEN M. IMHOFF served as field director and lab director for the project and authored major portions of the report. Mr. Imhoff received an M.A. degree in anthropology from the University of Arkansas in 1982.

SCOTT A. JONES assisted in the laboratory analysis and report preparation. Mr. Jones received a B.A. degree in anthropology from the University of Arkansas in 1982.

TIMOTHY C. KLINGER served as the Principal Investigator for the project. Mr. Klinger received an M.A. degree in anthropology in 1977 from the University of Arkansas and a J.D. from the University of Arkansas School of Law in 1982.

CAROL MARTINDALE assisted in processing of the collections. Ms. Martindale is working towards completion of a B.A. degree in anthropology at the University of Arkansas.